Treating Mild Gestational Diabetes Has Benefits

BY DOUG BRUNK

SAN DIEGO — Treatment of mild gestational diabetes did not reduce the frequency of several commonly reported morbidities associated with diabetic pregnancy, results from a large multicenter randomized trial demonstrated.

However, treatment did lower birth weight and resulted in a 50% reduction in macrosomia, as well as lower neonatal fat mass, rates of shoulder dystocia, cesarean delivery, preeclampsia, and gestational hypertension.

"Identification and treatment of mild gestational diabetes is clearly associated with significant clinical benefits," Dr. Mark B. Landon said at the annual meeting of the Society for Maternal-Fetal Medicine.

The incidence of gestational diabetes, defined as glucose intolerance with onset or first recognition during pregnancy, is rising in the United States, said Dr. Landon, professor of obstetrics and gynecology at Ohio State University, Columbus. More than 45 years ago, researchers "first proposed criteria for the diagnosis, which were based on the subsequent development of adult-onset diabetes and not on any association between carbohydrate intolerance and adverse pregnancy outcomes," he said. "Thus, the clinical significance of gestational diabetes and, in particular, mild gestational diabetes as it relates to perinatal morbidity, is unclear and has been challenged for decades."

Based largely on results of retrospective single-center studies to date, there has been "widespread acceptance of screening and treatment of gestational diabetes by professional organizations with little evidence of demonstrable benefit," he said.

However, in 2003 and 2008, the U.S. Preventive Services Task Force concluded that there is insufficient evidence to determine if treatment of mild gestational diabetes provides a health benefit.

The controversy prompted the maternal-fetal medicine units network of the Eunice Kennedy Shriver National Institute of Child Health and Human Development to conduct a randomized trial to determine if treatment of mild gestational diabetes reduced perinatal morbidity.

For the study, 958 women with a singleton gestation who met criteria for mild gestational diabetes (a fasting value of less than 95 mg/dL on a blinded 3-hour oral glucose tolerance test) were allocated to one of two groups. The 485 women in the treatment group received formal nutrition counseling, instruction on self-monitoring of blood glucose, and insulin administration, if necessary. The 473 controls received standard routine obstetric care, and clinicians and study participants were unaware of their glucose tolerance test results.

The primary end point was a composite outcome that consisted of perinatal mortality; neonatal hypoglycemia defined as a value less than 35 mg/dL during the first 2 hours of life without feeding; a serum bilirubin greater than 8 mg/dL between 16 and 36 hours of life, hyperinsulinemia as reflected by a cord blood C-peptide greater than the 95th percentile, or birth trauma.

The average age of the study participants was 29 years. There were no differences in the frequency of composite primary neonatal outcome (32% in the treatment group vs. 37% in the control group).

Among secondary outcomes, Dr. Landon and his associates observed a significant difference between the treatment and control groups in mean birth weight (3,302 g vs. 3,408 g, respectively), fetal fat mass (427 g vs. 464 g), and frequency of infants weighing greater than 4,000 g at birth (6% vs. 14%).

The clinical significance of mild gestational diabetes 'is unclear and has been challenged for decades.'

DR. LANDON

No differences were seen in NICU admission, preterm delivery, respiratory distress syndrome, or need for intravenous glucose treatment.

In maternal outcomes, induction of labor rates were similar between the two groups (about 27%), but the treatment group had significantly lower overall rates of cesarean delivery (27% vs. 34%) and rates of cesarean corrected for abnormal presentation and prior cesarean (13% vs. 20%).

The shoulder dystocia rate also was reduced with treatment (2% vs. 4%) as was the rate of preeclampsia and gestational hypertension as a composite (9% vs. 14%).

Dr. Landon disclosed no conflicts of interest related to the study. ■

Glitazone Use Linked to Diabetic Macular Edema in Data Review

BY MARK S. LESNEY

Glitazone use was associated with an increased risk of diabetic macular edema even after confounding factors were accounted for, according to the results of a large, prospective cohort study.

Insulin and meglitinide use also resulted in statistically significant increases in the risk of diabetic macular edema (ME), the analysis found.

Glitazones (thiazolidinediones) are used to reduce insulin resistance in patients with type 2 diabetes. Among the most commonly used drugs in this class is pioglitazone (Actos). Some studies have found pedal edema in 3%-5% of glitazone users, and others have suggested an association between glitazones and ME.

More than 170,000 people listed in the Diabetes Case Identification Database were included in a study conducted by Kaiser Permanente Southern California. Glitazone use was based on records in the pharmacy database, and the main outcome measure was the development of ME, according to Dr. Donald S. Fong and Richard Contreras of the Southern California Permanente Medical Group offices in Baldwin Park and Pasadena.

For 2002-2006, 143,257 patients with diabetes had a drug benefit. Of these, 59,013 patients had at least one eye exam in 2006, and in that year, 996 new cases of ME were identified. In the total population, 17,078 patients were treated with glitazones; 98% of them were treated with pioglitazone. In a direct comparison, all patients who were treated with glitazones showed a higher risk of developing ME in 2006 (odds ratio, 2.6). After excluding patients who did not have a drug benefit or an eye exam and who had an HgA_{1c} level less than 7.0, the investigators found that glitazone use was still associated with an increased risk of ME (OR, 1.6).

Other drugs showed an increased risk of ME in these patients. Insulin and meglitinide also significantly increased the risk of diabetic ME. However, metformin and acarbose use were not associated with ME.

When treating patients with diabetic macular edema, clinicians should consider the role of glitazones.

DR. FONG

An interactive model that was used to explore the relationship between insulin and glitazone showed that although both drugs separately are associated with an increased risk of ME, the risk is diminished when individuals take both drugs. There were no statistically significant differences between different doses of pioglitazone and the risk of ME (Am. J. Ophthalmol. 2009 [doi:10.1016/j.ajo.2008.10.016]).

"The current larger study of over 17,000 users of glitazone confirms an association between glitazone use and ME. When treating patients with diabetic ME, [clinicians] should consider the role of the glitazone class of drugs," the authors concluded.

The researchers reported that they had no financial conflicts of interest. ■

Diabetes or Prediabetes Present in 40% of Adults

BY HEIDI SPLETE

More than 40% of Americans aged at least 20 years have hyperglycemic conditions, according to review of the 2005-2006 National Health and Nutrition Examination Survey.

Catherine Cowie, Ph.D., of the National Institutes of Health, and her colleagues compared NHANES data from 1988-1994 to that of 2005-2006 (Diabetes Care 2009;32:287-94).

The total crude prevalence of diabetes, including diagnosed and undiagnosed cases based on fasting plasma glucose or 2-hour glucose tests, was 13% in those aged 20 and older. The total diabetes prevalence peaked at about 30% among those older than 60 years, and the prevalence of diabetes was about the same in men and women.

After the researchers controlled for age and sex, the total diabetes prevalence was 70% higher in non-Hispanic blacks and 80% higher in Mexican Americans, compared with non-Hispanic whites.

The total crude prevalence of prediabetes, including both diagnosed and undiagnosed cases based on impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) tests, was 30%. This rate was highest among those aged 75 and older, where it reached 47%.

The total prevalence of diabetes and prediabetes, diagnosed and undiagnosed, was significantly higher in men (48% vs. 34%) but this was due largely to the greater prevalence of prediabetes among men. The prevalence of any hyperglycemic condition was significantly higher in non-Hispanic blacks vs. whites (44% vs. 39%) and in Mexican Americans vs. non-Hispanic whites (52% vs. 39%).

A comparison of the 2005-2006 data with that of 1988-1994 showed a significant rise in the crude prevalence of diagnosed diabetes from 5% to 8%.

"The sheer magnitude of prevalence of hyperglycemic conditions found in 2005-2006 portends all the consequences of diabetes, including its myriad of complications and costs both to individuals and to society," the researchers wrote.

The results were limited by the use of a single plasma glucose reading for some cases of undiagnosed diabetes and prediabetes, they noted.

The researchers had no financial conflicts to disclose. ■