High OGTT in Pregnancy Ups Later Diabetes Risk

BY MICHELE G. SULLIVAN
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Women who have an abnormal glucose tolerance test result during pregnancy but do not develop gestational diabetes still face an increased risk of developing type 2 diabetes later on, investigators reported.

The large retrospective study, published Jan. 25, concluded that even modestly elevated glucose levels double the risk of diabetes within the next 9 years. "The risk of subsequent diabetes … likely occurs since these women have an intermediate form of glucose intolerance" with impaired β-cell functioning, wrote Dr. Darcy B. Carr of the University of Washington, Seattle, and her coauthors (Diabetes Care 2008 Jan. 25 [doi 10.2337/dc07-1957]).

In this retrospective cohort study, the researchers analyzed diabetes risk over a mean 9-year follow-up period in 31,000 women without gestational diabetes who had an oral glucose tolerance test (OGTT) or oral glucose challenge test (OGCT) during their pregnancy. The mean age was 31 years; the median follow-up was 9 years.

The investigators found that the risk of later development of type 2 diabetes rose as the values of the OGCT rose. Compared with women whose levels were normal, women with glucose levels of 5.4-6.2 mmol/L and 6.4-7.3 mmol/L had double the risk of developing the disease, while women with levels greater than 7.3 mmol/L were three times more likely to do so. Women with no abnormal values on the OGTT were at no increased risk of developing type 2 diabetes, but those with one abnormal value were twice as likely to do so.

Women with one abnormal value on the oral glucose tolerance test were twice as likely to develop diabetes as were those with no abnormal values.

These associations remained significant even after the researchers controlled for age, primigravidity, and preterm delivery.

The finding is consistent with those from a previous, much smaller longitudinal study that reported higher frequencies of glucose intolerance in women with one abnormal OGTT value.

Dr. Carr and her colleagues noted that their study could not control for race, family history, or body mass index—all important factors to consider when assessing diabetes risk. In addition, subsequent diabetes was not systematically assessed, which may introduce bias in those who were selected for testing, they wrote.

They also said their conclusions are not sufficient for them to make any screening or treatment recommendations, adding that, "Whether women who fall within this intermediate range of glucose intolerance during pregnancy may benefit from increased diabetes surveillance as well as lifestyle recommendations proven to reduce the risk of developing diabetes is unknown." ■

New-Onset Diabetes Often Precedes Pancreatic Cancer

BY HEIDI SPLETE
Senior Writer

New cases of diabetes were significantly more common among pancreatic cancer patients before their cancer diagnoses, compared with controls, according to data from 736 pancreatic cancer patients and 1,875 controls.

Although previous studies have shown a link between existing diabetes and pancreatic cancer, the temporal relationship between the two diseases—and whether this relationship might be used to predict cancer—is not well understood, wrote Dr. Suresh T. Chari and colleagues at the Mayo Clinic in Rochester, Minn.

To determine the prevalence of new-onset diabetes in pancreatic cancer patients and the temporal association between these conditions, the researchers reviewed records of pancreatic cancer patients and control patients seen at the Mayo Clinic between Jan. 15, 1981, and July 9, 2004. They assigned two matched controls to each cancer case. The mean age of both patients and controls was 69 years, and approximately 50% of the subjects in each group were men.

A subject was considered to have diabetes if he or she had a fasting blood glucose level greater than 126 mg/dL or was taking diabetes medication. The proportion of cases and controls with diabetes was compared in each 12-month interval, starting with 60 months prior to a cancer diagnosis for cancer patients (Gastroenterology 2008;134:95-101).

Overall, significantly more pancreatic cancer patients met the criteria for diabetes, compared with controls, any time during the 60-month period before pancreatic cancer diagnosis (40% vs. 19%). But the proportions of individuals with diabetes were not significantly different between the cancer group and the control group during the 12-month intervals from 60 months to 48 months and from 48 months to 36 months prior to cancer diagnosis.

In contrast, starting with 36 months before a cancer diagnosis, the prevalence of diabetes in the pancreatic cancer patients rose steadily for each 12-month interval, while the prevalence of diabetes in the controls remained relatively stable throughout the study period. New-onset diabetes was defined as diabetes with onset at 24 months or less prior to a cancer diagnosis.

Diabetes was more likely to be new onset in patients with pancreatic cancer than in controls (52% vs. 24%, respectively) among the subjects with diabetes for whom diabetes duration was known; this difference was highly significant.

"The very high prevalence of diabetes in pancreatic cancer and its close temporal association with the diagnosis of cancer provide strong epidemiologic evidence to support the notion that pancreatic cancer causes diabetes mellitus," the researchers wrote.

The findings support data from small clinical studies in which the removal of tumors from pancreatic cancer patients with diabetes has improved their glucose tolerance and reversed their metabolic defects. But prospective studies are needed to show the benefits of screening older adults with new-onset diabetes for pancreatic cancer, and such screening would be helpful only if a type of new-onset diabetes that is associated with pancreatic cancer could be distinguished from type 2 diabetes, perhaps with the use of a biomarker test, the researchers noted.

There is a lack of practical criteria that could be used to rule out pancreatic cancer in new-onset diabetes patients, wrote Dr. Niels Teich, of the University of Leipzig (Germany) in an accompanying editorial (Gastroenterology 2008;134:344-5). The study findings invite more research to determine whether new-onset diabetes in pancreatic cancer patients is different from new-onset type 2 diabetes mellitus in general, and whether new-onset diabetes could be an early sign of this cancer in otherwise asymptomatic persons, he noted. ■

Two Insulin Analogs Equally Effective in Children's Pumps

BY HEIDI SPLETE
Senior Writer

Two types of insulin analogs were equally safe and effective when used in insulin pumps by children and adolescents aged 4-18 years, according to results from a study of 298 children.

The popularity of continuous subcutaneous insulin infusion (CSII) for children and adolescents with type 1 diabetes has increased, despite limited safety and effectiveness data, in part because many children and teens prefer the customized insulin delivery of a pump rather than multiple daily insulin injections.

Results from previous studies have shown that both insulin lispro and insulin aspart are safe and effective for CSII in adults with type 1 diabetes, and that CSII is as effective as multiple daily insulin injections. But this study is the first to compare the safety and effectiveness of two insulin analogs for CSII in a pediatric population (Diabetes Care 2008;31:210-5).

In this open-label study sponsored by Novo Nordisk Inc. (the manufacturer of insulin aspart), Dr. Stuart A. Weinzimer of Yale University, New Haven, Conn., and his colleagues randomized 198 children to use insulin aspart and 100 children to use insulin lispro for CSII. The intent-to-treat population included 197 children in the aspart group and 99 children in the lispro group.

The children's hemoglobin A_{1c} (HbA_{1c}) was assessed at baseline and again after 8, 12, and 16 weeks, and the primary outcome was the change from baseline to week 16.

Overall, the changes in HbA_{1c} were not significantly different between the two groups in the intent-to-treat population. The average HbA_{1c} values decreased from 8.0% at baseline to 7.9% at 16 weeks in the aspart group, and from 8.2% at baseline to 8.1% at 16 weeks in the lispro group.

In addition, 60% of the children in the aspart group and 44% of the children in the lispro group met the American Diabetes Association's age-specific recommendations for HbA_{1c} (less than 8% for children and adolescents aged 6-18 years, and less than 8.5% for children younger than 6 years) after 16 weeks, compared with 50% and 40%, respectively, who met those criteria at baseline.

The average fasting plasma glucose values were similar between the two groups at baseline and at the end of the study. As would be expected in a pediatric trial, children in both groups gained weight, but the average weight gain was not significantly different between the two groups (1.8 kg in the insulin aspart group vs. 1.6 kg in the insulin lispro group).

Overall, the incidence of adverse events was similar in the aspart and lispro groups (82% vs. 83%). But the majority of these events were mild, and the most common complaints included upper respiratory tract infections, hyperglycemia, and nasopharyngitis. Six children reported serious adverse events, but none of them discontinued the study as a result of these events. One child in the lispro group developed hypoglycemia, and five children in the aspart group reported hyperglycemia, hypoglycemic seizure, diabetic ketoacidosis, hypoglycemia with accidental overdose of insulin, and skin lacerations.

The average daily dose of insulin in the aspart group was significantly lower after 16 weeks, compared with the lispro group (0.86 units/kg vs. 0.94 units/kg), but the overall rates of hypoglycemia were similar in both groups, the researchers noted.

The clinical implication of the findings is that insulin aspart and insulin lispro are equally effective when used in insulin pumps to treat children and teens with type 1 diabetes, the researchers said. Regardless of the type of insulin analog used, the findings support the use of insulin pumps for young type 1 diabetes patients who want greater convenience and flexibility in managing their condition. ■