

Watch for Neuropsychiatric Disorders at Diabetes Dx

Retrospective study of 237 children, adolescents with type 2 diabetes finds depression is top diagnosis.

BY DAMIAN McNAMARA
Miami Bureau

ORLANDO, FLA. — Nearly 20% of children and adolescents have a neuropsychiatric diagnosis at the time they are diagnosed with type 2 diabetes, according to a retrospective study presented at the annual scientific sessions of the American Diabetes Association.

"Adolescents with neuropsychiatric disease and other risk factors may have a higher risk for glucose intolerance or type 2 diabetes, and may benefit from screening," Lorraine E. Levitt Katz, M.D., said. "The risk of type 2 diabetes may be greatest for obese children on atypical antipsychotics."

The relationship between neuropsychiatric illness and type 2 diabetes is not completely clear and is likely multifactorial. Weight gain, caused by neuropsychiatric illness or antipsychotic medication, may play a role; obesity is a risk factor for type 2 diabetes in children and adolescents. Neuropsychiatric illness may promote a sedentary lifestyle, another factor associated with weight gain. Some medications may cause hyperglycemia through insulin resistance or effects on beta cells. Other risk factors for pediatric type 2 diabetes in-

clude family history, ethnicity, and female gender, said Dr. Levitt Katz, a pediatric endocrinologist at the Children's Hospital of Philadelphia.

"At [Children's Hospital of Philadelphia], we've seen an increase in new type 2 diabetes cases. The number has increased steadily each year, up to 55 in 2002," said Dr. Levitt Katz, also of the University of Pennsylvania.

She and her colleagues reviewed the charts of 237 children and adolescents newly diagnosed with type 2 diabetes, to determine the prevalence of neuropsychiatric illness. They identified 46 such patients (19%). Diagnoses included depression, behavioral disorders (including attention-deficit hyperactivity disorder), mental retardation, autism, and developmental delay.

"A large number of pediatric patients with type 2 diabetes have neuropsychiatric disease," Dr. Levitt Katz said. Pediatric endocrinologists diagnosed most of the diabetes in the study population, but primary care physicians diagnosed some patients. The study findings may not even reflect the true prevalence. "We would argue our data are an underestimation of neuropsychiatric illness among children with diabetes."

Depression was the leading diagnosis (13 patients). A meeting attendee asked whether preexisting depression interferes with a patient's motivation regarding diabetes. "It's an enormous challenge that will require creative thinking to address," Dr. Levitt Katz said. Although the study focused on neuropsychiatric illness at the time of diagnosis, she added that there is also depression after diagnosis and a large number of undiagnosed disorders.

Investigators next looked at patient demographics for any factors that might be more strongly associated with neuropsychiatric illness. For example, they compared body mass index (BMI) z scores between diabetics with a neuropsychiatric condition and those without. "We did not find statistically significant differences in BMI, unlike we expected," she said.

Neither gender nor age at diabetes diagnosis was associated with a higher prevalence of neuropsychiatric illness. There was a trend toward a difference by ethnicity. The patient population included children who were African American (67%), Caucasian (24%), Asian Pacific (6%), and other (3%). "We found the African American population in the affected group was overrepresented at 79%, but it was not significantly different," Dr. Levitt Katz said.

The large number of comorbid conditions was a limitation of the study. In addition, the frequency of neuropsychiatric

disease was not studied in a comparable pediatric population without diabetes.

The researchers looked for an association between the number of antipsychotics and diabetes. They found that 37.5% of children taking antipsychotics were on one agent and 27.5% were on two agents, but there was no correlation. Dr. Levitt Katz said, "We were somewhat surprised by these results; we initially thought type 2 diabetes was associated with psychiatric medications."

Twenty patients were taking mood stabilizers and eight were taking selective serotonin reuptake inhibitors. There were 17 patients on atypical antipsychotics, most commonly risperidone (Risperdal) and olanzapine (Zyprexa). The atypical agents were prescribed for a wide range of diagnoses, including behavioral problems, bipolar disorder, schizophrenia, depression, and seizure disorder secondary to head trauma. Dr. Levitt Katz said, "This suggests there may be a lot of off-label use of these antipsychotics in children."

In February 2004, a consensus conference was held on antipsychotics, obesity, and diabetes. Recommendations that emerged from that meeting include performing a risk-benefit assessment before starting medications, tracking BMI and waist circumference, doing a baseline screening for diabetes, and monitoring patients regularly. ■

Children of Obese Mothers Prone to Obesity by Age 6 Years

BY DOUG BRUNK
San Diego Bureau

By the time children of overweight mothers reach 6 years of age, they are 15 times more likely to be obese, compared with children of lean mothers, results from a novel study suggest.

"These are kids at extraordinary risk for developing obesity," the study's lead author, Robert Berkowitz, M.D., said in an interview. "These are not kids who are going to get thin later."

The finding suggests that children of overweight mothers could become a target group for obesity prevention efforts, said Dr. Berkowitz, chair of adolescent psychiatry and executive director of the behavioral health center at the Children's Hospital of Philadelphia.

"Common sense prevention approaches [for children] include regular activity that's healthy and safe, cutting down on TV watching and computer game usage, and eating a healthy, low-fat diet with fruits and vegetables and portion control," he told this newspaper. "But we don't know that for sure because we haven't done the obesity prevention treatment at such a young age."

For the study, which is the largest of its kind, he and his associates followed 33 children at high risk of obesity and 37 children at low risk of obesity based on the mother's prepregnancy body mass index (*Am. J. Clin. Nutr.* 2005;81:140-6). Mothers of high-risk children had a mean prepregnancy BMI of 30.3 kg/m² while mothers of low-

risk children had a mean BMI of 19.5 kg/m². The study was confined to white children because they have different growth patterns compared with nonwhite children.

Investigators examined the children from 3 months of age to 6 years, including measurements of height, weight, skin fold thickness, and fat mass and lean mass by dual-energy x-ray absorptiometry (DXA). They defined childhood overweight as a BMI at or above the 85th percentile for age and gender according to the National Center for Health Statistics/Centers for Disease Control and Prevention growth charts.

By age 2, no clinical differences were observed between the high- and low-risk groups, but by age 4 years, weight, BMI, lean body mass, and waist circumference were significantly greater among high-risk children, compared with their low-risk counterparts. Dr. Berkowitz said these factors translated into an 11-fold risk of obesity developing in high-risk children.

By age 6 years, the weight, BMI, lean body mass, and waist circumference had increased even more among high-risk children compared with their low-risk counterparts. Skin fold thickness also increased. In addition, for the first time, fat mass was greater in high-risk children compared with their low-risk counterparts (6.7 kg vs. 3.8 kg, respectively). So was percentage of body fat (24.7% vs. 18.8%, respectively). Dr. Berkowitz said these factors translated into a 15-fold risk of obesity developing in high-risk children.

Harsohana Kaur, M.D., a pediatrician at

the University of Kansas, Kansas City, called the study "another piece of the puzzle" in gaining a better understanding of the epidemic of childhood obesity.

"As pediatricians, we have been seeing bigger and bigger babies who are becoming bigger and bigger toddlers," said Dr. Kaur, whose research interests include childhood obesity. "They seem to be bigger across the board. I have no idea how that's going to impact everything 20 years from now. This study is scary in that sense."

Dr. Berkowitz said he was surprised there were no clinical differences between the

high- and low-risk groups of children in the first 2 years of life. "The kids at 1 and 2 years were identical in measures of height and weight and skin fold and body composition," he said.

He added that efforts to prevent obesity in high-risk children should begin between ages 4 and 6 years. "Before that, you really can't tell which of the kids of overweight moms are going to become overweight," he said.

A study limitation, he said, was its relatively small sample size. The National Institutes of Health supported the study. ■

DATA WATCH

