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Adolescence may be a **critical period for cardiovascular disease prevention** in girls with type 1 diabetes. **6**

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Try Antibiotics Alone for Complicated Pneumonia

BY PATRICE WENDLING
FROM THE PEDIATRIC HOSPITAL
MEDICINE 2011 MEETING

KANSAS CITY, MO. – Just four children experienced radiographic or spirometric abnormalities 6 months after hospitalization for complicated pneumonia in a prospective observational study involving 82 patients.

“Long-term sequelae from this condition are uncommon, and this may be important information for clinicians, patients, and parents in weighing various treatment decisions,” study coauthor Dr. Sanjay Mahant said at the meeting.

While the best management strategy for complicated pneumonia continues to be debated, there's been increasing use of procedures, particularly chest tube

placement with fibrinolytics such as tissue plasminogen activator and video-assisted thoracoscopic surgery.

The lack of long-term sequelae in the Canadian-based study is particularly remarkable in that 40 children received a chest drain with fibrinolytics and 11 received a chest drain alone, while the remaining were treated only with antibiotics.

“I still think larger studies are needed, but it's really important when we're discussing with families up front to explain why we're doing these interventions,” Dr. Mahant said.

“We need to add in the mix that long-term outcomes are good regardless of whether we do antibiotics alone or an intervention, and what we're really
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“[These findings] may be helpful in prioritizing how invasive we need to be.”



Dr. Sanjay Mahant said, “Long-term sequelae from this condition are uncommon.”

PATRICE WENDLING/ELSEVIER GLOBAL MEDICAL NEWS



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Are Screening ECGs of Value?

Electrocardiograms may be **misinterpreted, which could be detrimental to young athletes if ECGs became a part of routine sports preparticipation screening, researchers at Stanford University suggested in light of their findings in an online questionnaire-based study. In the study, a series of 18 ECGs were interpreted by 53 members of the Western Society of Pediatric Cardiology.**

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Type 1 Diabetes Cases Often Misdiagnosed as Type 2

BY DOUG BRUNK

FROM THE ANNUAL SCIENTIFIC
SESSIONS OF THE AMERICAN
DIABETES ASSOCIATION

SAN DIEGO – More than one-third of type 1 diabetes cases from a large pediatric Medicaid population were misdiagnosed as having type 2 diabetes early in management, results from a 10-year analysis showed.

Such misclassification “may be associated with significantly increased risk of life-threatening, but potentially preventable, acute complications such as diabetic ketoacidosis,” Dr. Avnish Tripathi said at the meeting.

“These findings have implications for primary health care of diabetes and reiterate the importance of performing laboratory tests such as autoantibody titers and C-peptide levels for establishing type 1 diabetes

pathology earlier in the clinical management process.”

The increasing prevalence of obesity “is changing the demographics and clinical manifestations of diabetes in children,” said Dr. Tripathi, a doctoral candidate in the Arnold School of Public Health at the University of South Carolina, Columbia.

“Then there are disease variations such as double diabetes and ketosis-prone diabetes, which have further complicated the initial pediatric presentation of diabetes in terms of clear classification between type 1 and type 2 diabetes,” he said.

Misclassification can occur both ways, he continued. Since pediatric diabetes is traditionally assumed to be type 1, “it may be diagnosed as such even if characteristics point to type 2 diabetes. Because of increased

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Older Age at Dx Increased Risk

Misdiagnosed from page 1

awareness of type 2 diabetes in the pediatric population, type 1 diabetes in overweight or obese patients may be diagnosed as type 2 diabetes.”

In an effort to characterize the rates of initial misclassification of type 1 diabetes as type 2 diabetes and to examine the impact of its clinical implications, Dr. Tripathi and his associates analyzed data from 4,070 subjects aged 17 years and younger enrolled in the South Carolina State

Sixty-one percent of the subjects maintained a diagnosis of type 2 diabetes over time while 39% were later reclassified as having type 1 diabetes.

Medicaid Program who had at least two initial service encounters with an ICD-9 diagnosis of type 2 diabetes between 1996 and 2006.

They also evaluated ICD-9 codes for comorbid medical complications such as obesity and dyslipidemia, and for vascular and other complications such as diabetic ketoacidosis.

Of the 4,070 children and adolescents, more than half (57%) were female, 56%

were non-Hispanic black, their median age was 8 years, and they were followed for a median of 7 years.

Dr. Tripathi reported that 2,489 of the subjects (61%) maintained a diagnosis of type 2 diabetes over time while 39% were later reclassified as having type 1 (misclassification group).

Compared with their counterparts who maintained a diagnosis of type 2 diabetes over the follow-up period, a significantly higher proportion of youth in the misclassification group were treated with insulin (82% vs. 2%, respectively), and went on to develop dyslipidemia ($P < .001$) and hypertension ($P = .0001$).

After follow-up time and other variables were taken into account, older age at diagnosis increased the risk of misclassification (odds ratio 1.66), while being obese or overweight decreased the risk of being in the misclassification group (OR 0.79).

Compared with those who maintained a diagnosis of type 2 diabetes, youth in the misclassification group had a 50-fold increased risk of at least one incidence of diabetic ketoacidosis (OR 49.5), nearly a 4-fold increased risk of developing cumulative diabetic neuropathy (OR 3.75), a higher risk of cumulative renal complications (OR 1.27), and a lower risk of

New Criteria Needed for Type 2 Dx

This concept is not new, and there have been a number of publications over the past decade regarding the difficulty in clinically separating type 1 and type 2 diabetes, as at least one-third of type 1 patients in our series are overweight or obese at diagnosis (Pediatr. Diabetes 2003;4:110-3; Diabetes Care 2003;26:2876-82; Diabetes Care 2003;26:2871-5), and another group has published a number of publications showing that patients with clinical type 2 diabetes have autoimmunity.

These findings have since been confirmed by the Today (Treatment Options for type 2 Diabetes in Adolescents and Youth) study and the SEARCH for Diabetes in Youth study. In the current study, I found it difficult to evaluate what

the criteria for the reclassification were.

Nonetheless, the message to pediatricians, general practitioners, and diabetologists should be that being obese does not protect the patient from type 1 diabetes, and thus, there needs to be other criteria to make the diagnosis of type 2 in children.

DOROTHY BECKER, M.D., is professor of pediatrics and director of the division of endocrinology and diabetes at Children's Hospital of Pittsburgh and the University of Pittsburgh, who was asked to comment on Dr. Tripathi's findings. Dr. Becker said she had no relevant financial disclosures. Her 2003 series of diabetes studies were funded by the National Institutes of Health.

developing cardiac conditions (OR 0.81).

Dr. Tripathi also reported that older age was associated with increased risk of cumulative neuropathy (OR 1.79), renal complications (OR 1.17), and cardiovascular complications (OR 1.44).

He acknowledged certain limitations of the study, including ascertainment and information bias due to the use of administrative data, “but we tried to

mitigate this by using more than one service encounter and use of concomitant medications to ascertain medical conditions.

“However, the direction of causality cannot be inferred from our results, and the results cannot be extrapolated to other regions and populations,” he noted

Dr. Tripathi said that he had no relevant financial disclosures. ■

CVD Risk Factors Greater in Girls With Type 1 Diabetes

BY DOUG BRUNK

FROM THE ANNUAL SCIENTIFIC SESSIONS OF THE AMERICAN DIABETES ASSOCIATION

SAN DIEGO – Girls with type 1 diabetes had significantly increased mean hemoglobin A_{1c} levels, body mass index, LDL cholesterol, and C-reactive protein, compared with boys who have the disease, results from a single-center study demonstrated.

The finding suggests that adolescence “may be a critical period for CVD prevention in girls with type 1 diabetes,” Talia L. Brown said at the meeting. “Future studies should investigate factors contributing to these gender differences.”

Adults with type 1 diabetes are known to have a higher risk of cardiovascular disease compared with nondiabetic adults, said Ms. Brown, a graduate student who is a research assistant at the Barbara Davis Center for Childhood Diabetes, Aurora, Colo.

“There is a greater relative increase in women, where women with type 1 diabetes have four times the CVD risk as nondiabetic women,” Ms. Brown commented.

“Meanwhile, men with type 1 diabetes have two times greater CVD risk than nondiabetic men. It is uncertain when these gender differences begin,” she said.

To find out, she and her associates compared the CVD risk profile of 302 adolescents with type 1 diabetes with 100 nondiabetic adolescents and evaluated gender differences between the groups.

The adolescents' mean age was 15 years. Tanner stage was assessed by a physician or self-report at the visit.

Measures included fasting lipids, assays for HbA_{1c} and C-reactive protein, diastolic and systolic blood pressure, and body mass index z score.

VITALS

Major Finding: Compared with boys who have type 1 diabetes, girls with the disease had significantly increased average hemoglobin A_{1c} (9.1% vs. 8.7%, respectively), body mass index z score (0.72 vs. 0.49), LDL cholesterol (95 mg/dL vs. 82 mg/dL), and C-reactive protein (0.86 mg/dL vs. 0.15 mg/dL).

Data Source: A study of gender differences and cardiovascular disease risk factors among 302 adolescents with type 1 diabetes and 100 adolescents without the disease.

Disclosures: The study was funded by the Juvenile Diabetes Research Foundation, the National Institute of Diabetes and Digestive and Kidney Diseases, and Children's Hospital Colorado Clinical Translational Research Center. Ms. Brown said that she had no relevant financial conflicts to disclose.

The researchers used questionnaires to assess physical activity and average insulin dose, and multivariate linear regression to examine each CVD risk factor.

Ms. Brown reported that physical activity was equivalent among the study participants (a mean of about 2 hours per day), and insulin dose was similar between boys and girls (a mean of 1.1 vs. 1.2 units/kg, respectively).

Compared with boys with type 1 diabetes, girls with the disease had significantly increased mean hemoglobin A_{1c} (9.1% vs. 8.7%, respectively), BMI z score (0.72 vs. 0.49), LDL cholesterol (95 mg/dL vs. 82 mg/dL), and CRP (0.86 mg/dL vs. 0.15 mg/dL).

Boys with type 1 had higher levels of systolic blood pressure, compared with girls with the disease – 115 mm Hg vs. 111 mm Hg, respectively.

But girls with type 1 had higher levels of systolic blood pressure, compared with nondiabetic girls (111 mm Hg vs. 106 mm Hg, respectively).

“Girls with diabetes had higher LDL levels than both boys with type 1 diabetes and girls without

diabetes,” Ms. Brown added.

“CRP was ninefold higher in girls with type 1 diabetes than in both girls without diabetes and boys with type 1 diabetes,” she said.

After adjustment for HbA_{1c} and BMI z score, a significant increase in CRP and LDL in girls with type 1 diabetes remained.

The researchers also found a significant interaction between gender and diabetes, “causing type 1 diabetes to have a more

detrimental effect in girls than in boys with regard to LDL cholesterol and systolic blood pressure,” according to Ms. Brown.

Increased HbA_{1c} and body mass index “are likely to contribute to the increased blood pressure, inflammation, and cholesterol that we observed in girls with type 1 diabetes,” the researcher said.

“These findings are somewhat unexpected, because generally there can be an inverse relationship between glycemic control and weight. Increased HbA_{1c} and obesity are likely to translate into worse CVD outcomes for females, and raises concern for the long-term effects in CVD health.”

When asked to speculate why HbA_{1c} and body mass index were increased in girls with type 1, Ms. Brown said that girls generally “have a hard time controlling both [factors], so it's hard to know what's contributing to this.”

Prevention efforts such as maintaining a healthy diet, getting adequate physical exercise, and controlling blood pressure and cholesterol levels “may improve this problem,” she said. ■