

Race Affects Control of Pediatric Type 1 Diabetes

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NEW ORLEANS — Race affects diabetes control and abnormal lipid profiles in children with type 1 diabetes, Dr. Ambika Ashraf said at the Southern regional meeting of the American Federation for Medical Research.

Total cholesterol, LDL cholesterol, HDL cholesterol, and non-HDL cholesterol levels are significantly affected by

chronic glycemic control over time, and “in our cohort, African Americans exhibited poor glycemic control,” she said.

African American children had significantly higher total cholesterol (TC) levels (175 mg/dL vs. 164 mg/dL), glycosylated hemoglobin (HbA_{1c}) levels (10.6% vs. 8.7%), and body mass indices (21 kg/m² vs. 20 kg/m²) when compared with white children. This retrospective study involved 182 children diagnosed with type 1 diabetes mellitus, aged 1-16 years (average age at di-

agnosis, 8 years), of whom 76% were white and 24% were African American.

However, the African American children had significantly higher levels of protective HDL cholesterol (66 mg/dL vs. 56 mg/dL) and better TC:HDL ratios (2.7 vs. 3.1), Dr. Ashraf, a pediatric endocrinologist at the University of Alabama, Birmingham, and colleagues reported.

The study is the first to shed light on racial differences in pediatric patients with type 1 diabetes, she said. Research has

shown that HDL cholesterol levels are higher in African American adults with type 2 diabetes (Diabetes Care 2000;23:319-24) and that HDL and TC levels are higher in black children without type 1 diabetes (Prev. Med. 1998;27:879-90).

A recent study also demonstrated a significant association between HbA_{1c}, TC, and non-HDL cholesterol in children with type 1 diabetes, but did not evaluate racial differences (J. Pediatr. 2007;150:146-50e2).

Average values for the lipid variables were based on 528 tests performed at multiple time points. Triglyceride measurements were not evaluated because the investigators couldn't ensure the fasting status at the time of the lipid profiles, a fact that Dr. Ashraf acknowledged was a limitation of the study.

The average values for all children in the study were TC 168 mg/dL, HDL chole-



African American children had significantly higher total cholesterol and HbA_{1c} levels than white children.

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terol 59 mg/dL, and LDL cholesterol 85 mg/dL. In comparison, the average values in the general population of children aged 4-19 years are TC 165 mg/dL, HDL cholesterol 50 mg/dL, and LDL cholesterol 95 mg/dL, based on 1999-2004 National Health and Nutrition Examination Survey (NHANES III) data.

Total cholesterol was greater than 200 mg/dL in 13% of patients, whereas LDL cholesterol was greater than 130 mg/dL in 5%, Dr. Ashraf said. HDL cholesterol was less than the optimal level in only 3% of patients. The optimal HDL cholesterol level for children with diabetes has been defined as greater than 35 mg/dL (Diabetes Care 2003;26:2194-7).

Significant differences were observed between genders. Females had higher BMI (21 kg/m² vs. 20 kg/m²), TC (170 mg/dL vs. 164 mg/dL), and non-HDL cholesterol (111 mg/dL vs. 106 mg/dL) compared with males.

Using a multivariate regression analysis, the investigators identified a positive association between BMI and non-HDL cholesterol levels, LDL cholesterol levels, and TC:HDL cholesterol ratio; and a negative association between BMI and HDL cholesterol levels. There was no significant association between BMI and TC.

In mixed-model longitudinal data analyses, HbA_{1c} was significantly related to TC, TC:HDL cholesterol ratio, LDL cholesterol, and non-HDL cholesterol levels after controlling for age, sex, and gender, whereas HbA_{1c} was inversely related to HDL cholesterol levels.

African American children were more affected by the longitudinal variations in HbA_{1c} over time, with greater changes in their TC and LDL cholesterol levels versus white children. These trends were significant even after adjustment for the baseline lipid panel values. ■

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