Children May Skip Fasting Before Lipid Test

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VANCOUVER, B.C. — Children may not need to fast before having their blood drawn for lipid screening, investigators reported at the meeting.

In a cross-sectional study of nearly 11,000 U.S. children aged at least 3 years, levels of total and HDL cholesterol were essentially unaffected by the time since a child had last eaten, and levels of LDL cholesterol increased only slightly. However, levels of triglycerides decreased substantially with the time elapsed.

"Though fasting is often recommended [before lipid screening], compliance with fasting procedures is often difficult for children and may cause delayed or missed testing," said lead investigator Asheley C. Skinner, Ph.D., of the University of North Carolina at Chapel Hill. Hence, the study's findings could remove a barrier to screening in the pediatric population.

"If confirmed in other research, physicians may be able to decrease the burden of childhood cholesterol screening by not requiring prescreening fasting," she said.

The investigators analyzed data from the National Health and Nutrition Examination Survey (NHANES) for the years 1999-2006, focusing on children aged 3 years or older who had a lipid measurement.

The children's fasting status depended on the time of day they were examined (morning vs. afternoon), their age (younger than age 12 vs. older), and their compliance with any fasting instructions they had been given. At the time a child's blood was drawn, the parents were asked how long it had been since their child had last had something to eat or drink.

Analyses of total and HDL cholesterol were based on 10,948 children, of whom 48% had fasted more than 8 hours, according to Dr. Skinner. Analyses of LDL cholesterol and triglycerides were based on a subset of 4,424 children, 80% of whom had fasted more than 8 hours.

After the researchers controlled for factors potentially associated with fasting (weight status, age, race/ethnicity, and sex), levels of total cholesterol and HDL cholesterol did not differ significantly with the duration of fasting out to 24 hours, she said.

In contrast, with each additional hour of fasting, levels of LDL cholesterol increased modestly, by 0.46 mg/dL, and levels of triglycerides decreased considerably, by 0.86 mg/dL. Both changes were significantly different.

Regression models indicated that after a period of 12 hours (the ideal duration of fasting for lipid measurement), the difference in LDL cholesterol level between fasted and nonfasted states would be less than 4 mg/dL, whereas the difference in triglyceride levels would be about 10 mg/dL.

"Total cholesterol and HDL cholesterol can likely be interpreted correctly without fasting," Dr. Skinner concluded. "LDL [cholesterol] without fasting provides a close approximation of fasting LDL; the differences we noted, while statistically significant, are likely not clinically significant."

On the other hand, fasting does appear to have an important effect on triglyceride levels, she observed, although at least in adults, data now suggest that the nonfasting level may be a better predictor of cardiovascular disease and its morbidity anyway.

The study's main limitation was its population-level nature, which precluded measurement of fasting and nonfasting levels in the same child. "There may be individuals who do have dramatic changes who are hidden within the larger group," Dr. Skinner said. ■

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Major Finding: With each additional hour of fasting, levels of total and HDL cholesterol remained the same, levels of LDL cholesterol increased by 0.46 mg/dL, and levels of triglycerides decreased by 0.86 mg/dL.

Data Source: An observational study in a nationally representative sample of nearly 11,000 children aged 3 years or older.

Disclosures: Dr. Skinner reported that she had no conflicts of interest related to the study.