Fatty Liver Disease Common in U.S. Adolescents

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NEW ORLEANS — The prevalence of nonalcoholic fatty liver disease among U.S. children aged 9-19 years may be about 17%, far higher than previous estimates, based on an autopsy study of livers from 238 children from the San Diego area.

Among obese children aged 9-19, the prevalence of nonalcoholic fatty liver disease (NAFLD) was 45%, Jeffrey B. Schwimmer, M.D., reported in a poster at the annual Digestive Disease Week.

With an estimated 9 million obese children in the United States today, "that's a lot of kids walking around with liver disease that no one knows about," said Dr. Schwimmer, a pediatrician and director of the fatty liver clinic at Children's Hospital and Health Center, San Diego. "Liver disease is the most common serious complication of obesity in children."

Until now, overall prevalence estimates for NAFLD in children have ranged from about 2% to 8%. To get a more definitive handle on the scope of the problem, Dr. Schwimmer and his associates reviewed liver biopsies taken from children aged 2-19 who died suddenly in San Diego County during January 2000-July 2003. Causes of death included accidents, homicides, and suicides. The decedents' racial makeup was 42% white, 36% Hispanic, 9% African American, 8% Asian, and 4% other. The weight breakdown was 5% underweight (defined as 15th percentile or lower), 58% normal weight (16th-84th percentile), 14% overweight (85th-94th percentile), and 24% obese (95th percentile or higher).

The liver biopsies were read by a hepatopathologist who was blinded to the study. NAFLD was defined as macrovesicular steatosis involving at least 5% of hepatocytes. Decedents were excluded from analysis if their necropsy was done more than 48 hours after time of death.

NAFLD was not found in any child younger than 9 years. Of the 278 children aged 9-19 with necropsy studies, 238 had liver biopsies available for review. The average age of the children in this group was 17 years, and 180 (75.6%) were boys.

NAFLD was 3.3-fold more common in boys than in girls in an adjusted analysis, and prevalence increased with age. In children aged 9-15, the prevalence was about 10%, but it rose to 18% in those aged 17-19 years. NAFLD was most common in Hispanics (22%), followed by whites (15%), African Americans (8%), and Asians (5%). The higher rate in Hispanics persisted even when rates were also adjusted for obesity and other confounders, indicating that race and ethnicity has an independent role in the development of fatty liver disease.

When stratified by weight, the prevalence of NAFLD liver disease was 8% in the underweight kids, 7% in those with normal weight, 18% in the overweight children, and 45% in the obese children.

Diagnosing NAFLD in children in everyday practice can be a challenge for physicians. In a separate talk at the meeting, Dr. Schwimmer and his associates presented their findings from 100 children, 2-18 years old, who presented to his clinic during 1997-2003 with biopsy-proven NAFLD. "Most of the children were asymptomatic; about a third had vague abdominal pain," he said.

A careful physical examination can reveal hepatomegaly in most children with NAFLD, but palpating the liver in an obese child can be difficult. Another physical flag is a tender edge on the liver, but again, detecting this requires experience and a thorough examination.

Most children with NAFLD will have an abnormally high level of at least one liver enzyme—alanine aminotransferase, aspartate aminotransferase, or gamma glutamyltransferase. But physicians have to be careful about what their laboratory is flagging as above normal for these enzymes. Because NAFLD is so common, upper limits of normal have crept up, Dr. Schwimmer said. Some laboratories are calling an ALT level of 75 U/L normal, which can be the level in children with cirrhosis. "Anything above 40 U/L is likely a marker of disease," he said.

Another flag for NAFLD in obese children is acanthosis nigricans.

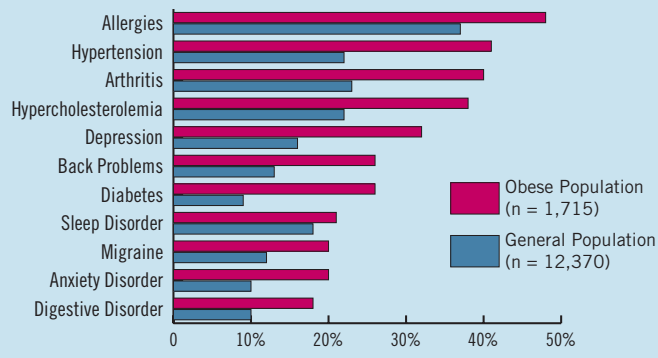
The 100-patient series also showed that the form of nonalcoholic steatohepatitis (NASH) that often appears in liver biopsies of children with NAFLD is distinct from the type of NASH that is typical in adults. Adult-type NASH, named type 1 by Dr. Schwimmer and his associates, is a steatosis with ballooning degeneration and/or perisinusoidal fibrosis with or without lobular inflammation and without portal inflammation or fibrosis.

Pediatric-type NASH, named type 2, features steatosis with portal inflammation and/or fibrosis without perisinusoidal fibrosis or lobular inflammation.

In the 100 patients reviewed, type 2 NASH was seen in 41 patients, and type 1 was found in 12. All of the biopsies from the seven patients studied who had advanced liver fibrosis or cirrhosis had type 2 disease. Type 2 NASH was also associated with male gender, greater adiposity, and nonwhite race, which may explain why the histologic findings in pediatric NASH often differed from adult NASH. The differences between types 1 and 2 may correlate with differences in pathogenesis, natural history, and treatment response, Dr. Schwimmer said. ■

DATA WATCH

More Comorbidities Found in Obese Patients



Note: Based on a nationwide survey of adults conducted June 10-22, 2004.
Source: Harris Interactive

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