

## Risk Differed by Gender

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roid function, or liver disease due to hepatitis or Wilson's disease. A total of 30 (19%) had levels of alanine aminotransferase (ALT) greater than 40 IU/L, generally considered the cutoff to indicate NAFLD.

More recently, cutoffs of greater than 30 IU/L for males and 19 IU/L for females are now being used in Europe and in some U.S. labs. When these cutoffs were used, up to half of the group had NAFLD, he said.

The subjects with elevated ALT did not differ from those with ALT levels at



**High estrogen levels in females may be protective against NAFLD.**

DR. GUPTA

or below 40 IU/L in age (average, 12 years) or BMI (34 kg/m<sup>2</sup>), but they did have significantly higher triglyceride levels (232 vs. 130 mg/dL), significantly lower HDL cholesterol levels (34 vs. 43 mg/dL), and significantly more insulin resistance (homeostatic model assessment of insulin resistance [HOMA-IR], 7.4 vs. 3.3). There was a significant positive correlation between ALT and triglycerides, HOMA-IR, BMI, and blood pressure, while HDL correlated negatively with ALT, he reported.

The prevalence of NAFLD was twice as high among the males as the females, with 27% vs. 13% having ALT levels above 40 IU/L. Males with NAFLD had significantly higher triglycerides than did the females with NAFLD (231 vs. 193 mg/dL), and also had lower HDL cholesterol (34 vs. 35 mg/dL). Males and females with NAFLD did not differ significantly with respect to age, BMI, or HOMA-IR, Dr. Gupta reported.

The prevalence of NAFLD rose with age for the entire study group, from 14.5% for 5- to 10-year-olds to 18% for 11- to 15-year-olds, to 31% for 16- to 20-year-olds. However, when broken down by sex, the relationship between NAFLD and age went in opposite directions. It actually dropped with age among the females, from 15.1% in the youngest group to 14.7% among the

11- to 15-year group to 7.1% in the older teens/young adults. In contrast, among the males the NAFLD prevalence rose with age from 13.6% to 24.2% to 53%.

The reason for the sex difference in the direction of NAFLD with age may relate to the fact that puberty in boys is associated with increased insulin resistance, whereas high estrogen levels in females may be protective against NAFLD.

In an interview, Dr. Gupta advised the following: All obese children with a BMI of more than the 95th percentile or with

insulin resistance or hypercholesterolemia should undergo liver function tests (LFTs) as screening. If the LFT results are elevated, the tests should be repeated within the next 3-6 months. If LFT results are persistently elevated, those children should be further evaluated for viral markers to rule out other known causes of liver disorders.

In addition to lifestyle modification to promote weight reduction and improved insulin sensitivity, metformin also can be used to treat NAFLD in children, he said. ■

## Study Is Consistent With Guidelines

MY TAKE

The findings by Dr. Gupta and associates are consistent with the existing literature and society guidelines created because of the high rates of NAFLD in overweight and obese children.

The Study of Child and Adolescent Liver Epidemiology was a large autopsy series in a community-wide setting. Based upon liver histology, this study estimated the prevalence of NAFLD at 9.6% in children aged 2-19 years. Moreover, it was demonstrated that fatty liver prevalence increases with age, is higher in boys than girls, and is high in Hispanics and low in African Americans (Pediatrics 2006;118:1388-93).

Three years ago, an expert committee assembled by the Centers for Disease Control and Prevention, the American Medical Association, and 15 health organizations, released recommendations on the Assessment, Prevention and Treatment of Child and Adolescent Overweight and Obesity. Within those guidelines are recommendations that children aged 10 years and older should receive biannual screening for NAFLD if they have a BMI at the 95th percentile or greater (obese) or a BMI between the

85th and 94th percentiles (overweight) and other risk factors. Furthermore, the committee recommended that an ALT or aspartate transaminase (AST) result twice that of normal levels should prompt a consultation with a pediatric hepatologist (Pediatrics 2007;120:S164-92).

Two years ago, the Lawson Wilkins Pediatric Endocrine Society and the Endocrinology Society published guidelines suggesting that obese children, regardless of age, should be screened for NAFLD (J. Clin. Endocrinol. Metab. 2008;93:4576-99).

Last month, a new publication from our group showed that ALT is incorrectly interpreted in many children's hospitals throughout the United States. Imagine that a primary care physician keeps up with the latest guidelines and correctly screens a child for liver disease but never knows that the child has liver disease because the electronic medical system does not flag the results with an "H," because the laboratory is using the incorrect threshold for detection. The newly derived thresholds for ALT in boys and girls, if applied, will greatly improve the rate of detecting NAFLD.



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(Gastroenterology 2010;138:1357-64).

Fatty liver disease is important because a small subset of children will develop cirrhosis and end-stage liver disease. As if that was not enough, data from a large study of overweight children with and without NAFLD, showed that having fatty liver is an important risk factor for developing type 2 diabetes and cardiovascular disease (Circulation 2008;118:277-83).

There is no doubt that, since the guidelines have come out, there is a greater level of awareness among primary care providers about the risk of liver disease in overweight and obese children. However, the resulting level of action is still not where it needs to be. More attention needs to be paid toward providing guidance and resources to primary care physicians once they do identify a young patient with NAFLD. The need for better means of prevention, early detection, and cure are exemplified by the widespread projection that, by 2020, NAFLD will be the most common cause for liver transplantation in adults in the United States, overtaking both hepatitis C and alcoholic hepatitis.

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## Obesity at Young Age May Raise Colon Adenoma Risk

BY MICHELE G. SULLIVAN

NEW ORLEANS — Adults who have been overweight since early adulthood are nearly twice as likely to have colon adenomas as those with a history of normal weight.

The findings reinforce the benefit of maintaining a healthy weight throughout life, Dr. Fritz Francois of New York University said in a written statement.

"Our conclusions suggest that the chronicity of obesity is a significant risk factor for developing colon cancer. Given the continued rise in early-onset obesity, especially in minority populations, there is a need for interventions and lifestyle modifications earlier in life to help lessen this serious health risk later in life."

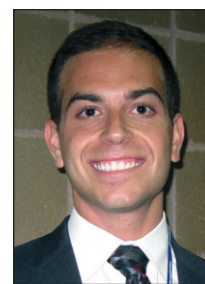
Ian Fagan, who is a fourth-year medical student at the university, presented the data at

the annual Digestive Disease Week. The colleagues conducted a prospective study of 1,865 patients who were referred for a screening colonoscopy. The patients' mean age was 57 years. Body mass index (BMI) was normal in 38%, whereas 39% were overweight and 23% were obese.

The researchers estimated BMI and waist circumference at age 10 and age 20 by having patients recall their clothing size and complete a validated questionnaire that included sketches of different body outlines. The subjects were divided into three groups: normal weight at age 20 years and at present; normal weight at 20 and now overweight or obese; and over-

weight or obese since age 20.

"We noticed right away ... that race and ethnicity had a significant impact on weight



**Becoming overweight or obese in early adulthood almost doubled the risk of an adenoma.**

MR. FAGAN

change since early adulthood," Mr. Fagan said. Sixty-one percent of Hispanics fell into the group that changed from normal weight to overweight or obese, as well as 50% of blacks, 46% of whites, and 7% of Asians.

Adenomas were significantly more common among patients who had been overweight or obese since age 10 (at a rate of 27%) and among those who went from normal weight to overweight (19%), compared with those who had maintained a normal weight (13%).

After controlling for age, gender, current BMI, U.S. birth, and red meat consumption, the investigators found that becoming overweight or obese in early adulthood almost doubled the risk of an adenoma on screening colonoscopy (odds ratio 1.8). ■

VITALS

**Major Finding:** Subjects who become overweight or obese in early adulthood are almost twice as likely to have colon adenomas than patients who maintain a normal weight.

**Data Source:** A prospective study of 1,865 people who underwent a screening colonoscopy.

**Disclosures:** None.