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Obese Children Burdened by More than Weight

Study finds higher risk for nonalcoholic fatty liver disease, hypertension and heart problems

High blood pressure and nonalcoholic fatty liver disease (NAFLD) are two emerging health problems related to the epidemic of childhood obesity. In a recent study, researchers at University of California, San Diego School of Medicine sought to determine the prevalence of high blood pressure in children with NAFLD, which places them at risk for premature cardiovascular disease.

The study, published in the November 24 edition of *PLOS ONE*, found that children with NAFLD are at substantial risk for high blood pressure, which is commonly undiagnosed.

“As a result of our study, we recommend that blood pressure evaluation, control and monitoring should be included as an integral component of the clinical management of children with NAFLD, especially because this patient population is at greater risk for heart attacks and strokes,” said Jeffrey Schwimmer, MD, in the Department of Pediatrics at UC San Diego School of Medicine and principal investigator of the study. “Hypertension is a main cause of preventable death and disability in the United States in adults, but much of the origin occurs in childhood.”

NAFLD – the inappropriate storage of fat droplets inside liver cells – is the most common cause of chronic liver disease in the United States and affects nearly 10 percent of all children. Although children with chronic liver disease often have no symptoms, some children with NAFLD will have fatigue and/or abdominal pain. The initial evaluation for NAFLD is via a blood test and diagnosis is ultimately based upon a liver biopsy. The disease is most common in children and teenagers who are overweight and can develop in conjunction with other health problems, such as diabetes.

The study, conducted by the National Institutes of Health Nonalcoholic Steatohepatitis Clinical Research Network, enrolled 484 children with NAFLD between two-and-17-years-old. The participants’ blood pressure was assessed at enrollment and at 48 weeks. Nearly 36 percent of

the group had high blood pressure at baseline; 21 percent had persistent high blood pressure almost a year later. In comparison, high blood pressure was present in two to five percent of all children and 10 percent of obese children.

“Along with being at an increased risk for cardiovascular disease, we found that children with NAFLD who had high blood pressure were significantly more likely to have more fat in their liver than children without high blood pressure. This could lead to a more serious form of liver disease,” said Schwimmer.

Researchers also found that compared to boys, girls with NAFLD were significantly more likely to have persistent high blood pressure.

Currently, there are no approved and effective treatments for children with NAFLD. However, there are treatments for high blood pressure.

“There are some reasons to believe that blood pressure control could be beneficial for NAFLD. Thus, we may be able to decrease the risk of premature cardiovascular disease in these children, and also help their liver,” said Schwimmer. “Parents and doctors need to be aware of the health risks of children who have NAFLD. The sooner high blood pressure is identified and treated in this patient population, the healthier they will be as they transition into adulthood.”

Co-authors include Anne Zepeda and Kimberly P. Newton, UC San Diego; Cynthia Behling, Sharp Medical Center; Erin K. Hallinan, Michele Donithan and James Tonascia, Johns Hopkins Bloomberg School of Public Health; and Stavra A. Xanthakos, Cincinnati Children’s Hospital Medical Center.

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