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Radiological Society of North America

Overweight children may develop back pain and spinal abnormalities

CHICAGO – Being overweight as a child could lead to early degeneration in the spine, according to a study presented today at the annual meeting of the Radiological Society of North America (RSNA).

"This is the first study to show an association between increased body mass index (BMI) and disc abnormalities in children," said the study's lead author, Judah G. Burns, M.D., fellow in diagnostic neuroradiology at The Children's Hospital at Montefiore in New York City.

In this retrospective study, Dr. Burns and colleagues reviewed MR images of the spines of 188 adolescents between the ages of 12 and 20 who complained of back pain and were imaged at the hospital over a four-year period. Trauma and other conditions that would predispose children to back pain were eliminated from the study.

The images revealed that 98 (52.1 percent) of the patients had some abnormality in the lower, or lumbar, spine. Most of those abnormalities occurred within the discs, which are sponge-like cushions in between the bones of the spine. Disc disease occurs when a bulging or ruptured disc presses on nerves, causing pain or weakness.

"In children, back pain is usually attributed to muscle spasm or sprain," Dr. Burns said. "It is assumed that disc disease does not occur in children, but my experience says otherwise."

According to the Centers for Disease Control and Prevention, 15 percent of U.S. children (age 6 – 11) and 18 percent of U.S. adolescents (age 12 -19) are overweight. BMI, a mathematical ratio of body weight and height, is a widely used measurement for obesity. Lower BMI is associated with being underweight or a healthy body size; higher BMI scores are associated with being overweight or obese. Children above the 85th percentile are generally classified as overweight or at risk of being overweight.

The researchers were able to determine an age-adjusted BMI for 106 of the total 188 patients. Fifty-four had BMI greater than the 75th percentile for age. Thirty-seven (68.5 percent) of these children showed abnormal findings on their spine MRI. Fifty-two patients fell into the lowest three quartiles. Only 18 (34.6 percent) of the children at or below a healthy weight had an abnormal MRI of the spine.

"We observed a trend toward increased spine abnormality with higher BMI," Dr. Burns said. "These results demonstrate a strong relationship between increased BMI in the pediatric population and the incidence of lumbar disc disease."

According to Dr. Burns, data revealed in the study could signal a significant public health problem given the health costs of back pain in the U.S.

"Back pain causes significant morbidity in adults, affecting quality of life and the ability to be productive," he said.

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Note: Copies of RSNA 2009 news releases and electronic images will be available online at RSNA.org/press09 beginning Monday, Nov. 30.

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