Routine care for Crohn's disease in children should include measurement of bone age

May 25 2012, By Juliana Bunim

(Medical Xpress) -- Measuring bone age should be a standard practice of care for pediatric patients with Crohn's disease, in order to properly interpret growth status and improve treatment, according to a new study from the UCSF Benioff Children's Hospital.

"Not only is bone age helpful in predicting a child's remaining growth potential, our study demonstrates that bone age is necessary to correctly interpret a patient's growth status in pediatric Crohn's disease," said lead study researcher Neera Gupta, MD, MAS, a pediatric gastroenterologist at the UCSF Benioff Children's Hospital.

Impaired growth and delayed puberty are common complications in children with Crohn's disease, with up to 80 percent of patients showing compromised growth. Typically, growth is interpreted based on a patient's chronological age, and growth status is one of the key factors driving therapeutic decisions.

In the study, researchers measured bone age with a left hand/wrist x-ray in 49 pediatric patients with Crohn's disease whose ages ranged from five to 17 years-old. Bone age is a measure of skeletal maturity, and, as a people grow, their bones change in shape and size. Based on the appearance of the bones and growth plates on the X-ray, a doctor can determine the bone age. Results can be given as a Z- score, either as average which is zero, or as a number of standard deviations above or below zero, taking into account the sex and chronological age of the patient. High bone age is defined as having a bone age Z- score (BA-Z

score) > 2, and low bone age is defined as a BA-Z score

The study, “Determination of Bone Age in Pediatric Patients with Crohn’s Disease Should be Part of Routine Care,” is currently online in the journal Inflammatory Bowel Diseases.

“One of our findings that surprised me was that 41 percent of our patients had BA-Z scores that were less than -2. I did not expect that such a large proportion of patients would have this degree of delay,” said Gupta.

Crohn’s disease is a chronic disorder characterized by inflammation in the gastrointestinal tract. It is one of the two main disease subcategories of inflammatory bowel disease, along with ulcerative colitis. About one quarter of the more than one million Americans with inflammatory bowel disease are diagnosed in childhood and adolescence. In pediatric patients, the inflammation characteristic of the disease may lead to an inability to grow normally. Poor growth may be the only presenting sign of Crohn’s disease in children and adolescents.

The disease is marked by an abnormal response by the body’s immune system. The cause is not well understood but probably has a genetic component and an unknown trigger, according to the researchers.

The interpretation of a patient’s growth changes when his or her bone age, rather than just chronological age, is taken into consideration. The added information is also useful for properly interpreting height increments following therapeutic interventions.

“We need further studies to understand the effects of disease activity on bone age advancement and to determine which patients require more frequent monitoring of bone age,” Gupta said.

Females in the study had significantly lower average BA-Z scores (-2.0) than males (-1.1). Interestingly, the research team previously had reported that males with Crohn's disease have more growth impairment than females. The researchers are continuing to investigate the underlying reasons for sex differences in growth. Certain factors — Caucasian race, exposure to steroids, colonic disease location, earlier pubertal stage, and current treatment with the immunomodulator azathioprine/6-mercaptopurine — also were associated with lower average BA-Z scores.

"It's important to know that active inflammation may be present even without classic intestinal symptoms such as abdominal pain, rectal bleeding, or diarrhea, said Gupta. "Poor growth may be the only sign of active disease. Including the X-ray as part of routine care allows a more clinically meaningful interpretation of statural growth and therefore enables us to improve our treatment recommendations."

The team of study researchers includes Eric Vittinghoff, PhD, professor in the UCSF department of epidemiology and biostatistics; Robert Lustig, MD, pediatric endocrinologist at UCSF Benioff Children's Hospital; and Michael Kohn, MD, MPP, associate professor in the UCSF department of epidemiology and biostatistics.

Funding was provided by grants from the National Institutes of Health, Crohn's and Colitis Foundation of America, and Children's Digestive Health and Nutrition Foundation (now known as the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition Foundation).

Provided by University of California, San Francisco

Citation: Routine care for Crohn's disease in children should include measurement of bone age

(2012, May 25) retrieved 16 April 2024 from https://medicalxpress.com/news/2012-05-routine-crohn-disease-children-bone.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.