MedicalXpress

Elevated gluten antibodies found in children with autism but no link to celiac disease

June 20 2013

Researchers have found elevated antibodies to gluten proteins of wheat in children with autism in comparison to those without autism. The results also indicated an association between the elevated antibodies and the presence of gastrointestinal symptoms in the affected children. They did not find any connection, however, between the elevated antibodies and celiac disease, an autoimmune disorder known to be triggered by gluten. The results were e-published in the journal *PLOS ONE*.

Gluten, a group of more than 70 proteins in wheat and related grains, consists of gliadins and glutenins. Autism is a neurodevelopmental disorder that negatively affects communication and social interaction. Although the mechanisms that cause autism are poorly understood, there is mounting evidence that the immune system plays a role in a subset of patients. In addition, autistic children commonly have gastrointestinal symptoms. In recent years, diets that exclude gluten have become increasingly popular in the autism community. The effectiveness of such diets, however, has not been confirmed in controlled and blinded studies.

The study, headed by Armin Alaedini, PhD, assistant professor of medical sciences (in the Department of Medicine and the Institute of Human Nutrition) at Columbia University Medical Center, looked at blood samples and medical records of 140 children. Thirty-seven of the children were diagnosed with autism and the rest were unaffected siblings or healthy control subjects. To increase diagnostic accuracy, only patients identified as having autism according to two well-recognized diagnostic instruments, the Autism Diagnostic Observation

Schedule and the Autism Diagnostic Interview, Revised, were selected. The blood samples were tested for antibodies to tissue transglutaminase, a sensitive and specific marker of celiac disease, as well as antibodies to gliadin. The patients also were tested for genes encoding certain human leukocyte antigens, which are strongly associated with celiac disease.

"This is the first study to systematically look at serologic and genetic markers of celiac disease and gluten sensitivity in such well-characterized cohorts of autism patients and controls," said Peter H. R. Green, MD, director of the Celiac Disease Center at Columbia University Medical Center and one of the study authors. "But the findings need to be confirmed in larger cohorts."

The authors suggest that further research is needed to understand the relevance of the described antibodies in autism. "The IgG antibody response to gluten does not necessarily indicate sensitivity to gluten or any disease-causing role for the antibodies in the context of autism," said Dr. Alaedini. "But the higher levels of antibody to gluten and their association with gastrointestinal symptoms point to immunologic and/or intestinal permeability abnormalities in the affected children." Dr. Alaedini noted that a better understanding of the immune response to gluten may yield novel clues about autism or offer biomarkers to identify a subset of patients that would respond to certain treatment strategies.

More information: Lau et al., *PLOS ONE*; June 18, 2013: dx.plos.org/10.1371/journal.pone.0066155

Provided by Columbia University Medical Center