Unique antibody profile sets gluten sensitivity apart from celiac disease

September 1 2020

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A new study of the antibodies produced by people with gluten sensitivity may lead to a better way to detect the condition and treat it.

Until recently, many doctors often dismissed the complaints of people who claimed to be sensitive to foods containing gluten but did not have celiac disease, a well-documented autoimmune disease triggered by exposure to the dietary protein found in wheat, rye, and barley.

That view has changed in the past few years, based partly on studies by Armin Alaedini, Ph.D., assistant professor of medicine at Columbia University Vagelos College of Physicians and Surgeons, that have delved into the biological basis for non-celiac gluten sensitivity.

But many aspects of non-celiac gluten sensitivity—including what causes it and how to diagnose it—remain poorly understood.

The new study by Alaedini shows that people with non-celiac gluten sensitivity, like those with celiac disease, produce a high level of anti-gluten antibodies, but the two conditions differ in the types of antibodies produced and the inflammatory responses these antibodies can instigate.

Alaedini and his team analyzed blood samples from 40 patients with celiac disease, 80 patients with non-celiac gluten sensitivity, and 40 healthy controls, all of whom consumed an unrestricted, gluten-containing diet.

"We found that the B cells of celiac disease patients produced a subclass profile of IgG antibodies with a strong inflammatory potential that is linked to autoimmune activity and intestinal cell damage," says Alaedini. "In contrast, the patients with non-celiac gluten sensitivity produced IgG antibodies that are associated with a more restrained inflammatory response."

Those antibodies could be used in the future to help physicians more easily detect people with non-celiac gluten sensitivity, which is currently difficult to diagnose.

The antibody profiles also hint at potential new therapies for celiac disease, which is currently treated only with diet. "The data suggest that celiac patients generate a strong B-cell inflammatory response each time they consume gluten, whereas the immune system in people with non-celiac gluten sensitivity learns from its earlier encounters with gluten and generates less-inflammatory responses to the antigen in subsequent interactions."

"If we can drive specific immune cells of celiac patients toward their less inflammatory states, we may be able to prevent or reduce the severity of the immunologic reaction to gluten."

The paper, currently available online ahead of print in Gastroenterology, is titled, "Subclass Profile of IgG Antibody Response to Gluten Differentiates Non-Celiac Gluten Sensitivity from Celiac Disease."

More information: Melanie Uhde et al, Subclass Profile of IgG Antibody Response to Gluten Differentiates Non-Celiac Gluten Sensitivity from Celiac Disease, *Gastroenterology* (2020). DOI: 10.1053/j.gastro.2020.07.032

Provided by Columbia University Irving Medical Center