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Scientists identify potential marker of EoE disease activity

Research suggests less invasive monitoring of food allergy disease

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CINCINNATI - Researchers have identified a potential marker of disease activity for a severe and often painful food allergic disease called eosinophilic esophagitis (EoE) - possibly sparing children with EoE the discomfort and risk of endoscopic procedures to assess whether their disease is active.

Published May 16 in the *Journal of Allergy and Clinical Immunology*, researchers at the Cincinnati Center for Eosinophilic Disorders (CCED) at Cincinnati Children's Hospital Medical Center led the study.

"Adults and children with EoE can be on highly restricted diets of formula alone or only a few foods," says Patricia C. Fulkerson, MD, PhD, senior study author. "One of the major obstacles to families participating in studies to introduce foods back into the child's diet is the need for endoscopy after each food is tried to see whether or not it triggers disease activity."

The disease activity of EoE is currently monitored using peak esophageal eosinophil count, which requires invasive endoscopy to collect esophageal tissue biopsies for assessment. People with EoE, a lifelong disease, must continue monitoring disease activity, even after effective treatment with restricted diets or steroids. Treatment changes, such as reintroducing a single food, requires additional endoscopic exams to assess for disease flare-ups.

Prior research has demonstrated that testing the blood of EoE patients is not a clinically useful indication of active disease because eosinophil levels in blood do not correlate well with levels in the esophagus. This led researchers to investigate a precursor cell to eosinophils, a lineage-committed eosinophil progenitor (EoP), as a potential marker. They found elevated EoP levels in the blood of pediatric patients with active EoE disease, suggesting a promising, blood-based marker.

"This clinical study is the first to investigate EoP levels in patients with EoE and identifies a potential new noninvasive biomarker," said study author Vincent A. Mukkada, MD, a physician at Cincinnati Children's and CCED member. "This work is an essential step toward improving outcomes for patients with EoE. It will be followed by repeated testing of more patients and with sequential measurements of EoP levels in the same patient during different disease states."

Researchers said that measuring EoP blood levels to monitor disease activity has the potential to reduce discomfort, costs and side effects for patients. The authors emphasize additional research is needed to validate the EoP-based marker before its routine use in clinic.

Allergic diseases have been on the rise over the past 20 years, with approximately one of every 13 children having food allergies and over 2.5 million children suffering from allergic asthma.

The CCED team at Cincinnati Children's has reported in previous studies that incidence of EoE is estimated at 1 out of 1,000 people. Their research also shows that EoE is caused by a combination of genetic and environmental factors, and is primarily mediated by an immunologic response to foods. The hallmark of EoE is swelling and inflammation in the esophagus, accompanied by high levels of immune cells called eosinophils.

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Related research links:

Fulkerson Research Lab http://www.cincinnatichildrens.org/research/divisions/a/allergy-immunology/labs/fulkerson/default/

Cincinnati Center for Eosinophilic Disorders http://www.cchmc.org/cced

Cincinnati Center for Eosinophilic Disorders Facebook page http://www.facebook.com/CCEDeos

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