University of Houston researcher Chandra Mohan is set to make a breakthrough in predicting and monitoring inflammatory bowel disease (IBD). With $347,490 from the Crohn’s & Colitis Foundation of America, he and IBD expert Subra Kugathasan, a gastroenterologist at Emory University, are examining stool protein biomarkers that indicate the disease.

An autoimmune disease, IBD occurs when the body’s immune system fights its intestinal cells. Two of the most common types are Crohn’s disease and ulcerative colitis, both of which cause inflammation in the digestive tract. Mohan is one of the world’s leading experts in autoimmune disease, particularly lupus.

"With the right biomarkers, we could be in the position to predict the diseases even before a diagnosis is made using conventional approaches," said Mohan, Hugh Roy and Lillie Cranz Cullen Endowed Professor of biomedical engineering.

It’s a long time coming. For two decades only one stool protein, fecal calprotectin, has been used to predict IBD, but it is suboptimal, according to Mohan, because its specificity and sensitivity is not perfect in predicting the diseases. Until now, no one looked for other stool proteins in a comprehensive fashion.

By examining the levels of 1100 different proteins in IBD stool samples supplied by Kugathasan, Mohan and doctoral student Sanam Soomro have narrowed down to 50, the number of proteins that are consistently elevated in IBD stools. That means they have found new and simple ways to predict who has IBD.

It’s significant because Mohan’s team studies many bodily fluids from several autoimmune diseases and this one seems to work better than others. "This one is really good because we see really high levels, and they are..."
crystal clear compared to healthy control stools? so we know something is going on there,? said Mohan.

As an added bonus, better disease diagnosis, monitoring and therapy in IBD can significantly improve the lives of patients. Diagnosing or monitoring the disease from a stool test is easier and less invasive and inexpensive compared to endoscopy or colonoscopy.

For instance, a patient already diagnosed with IBD might find out early if the disease is flaring or the symptoms are merely transient, indicating a momentary disturbance. The hope is that the biomarker will tell the difference. If the disease is flaring up, the biomarker in the stool will increase, meaning the patient can get treated quicker.

Mohan envisions a self-care or easy-care kit one day where patients can immediately understand what is happening inside, much like the saliva test and home-test kit for lupus his team is creating.

?If we have the right biomarkers, this has the potential to be a major breakthrough,? said Mohan.

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