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# *Research Offers Hope for Inflammatory Bowel Disease*

*an interview with Steven R. Tannenbaum*

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The letters IBD may mean nothing to the average person, but to approximately 1.4 million people in the United States, those three letters are the description of their misery. IBD is an acronym for Inflammatory Bowel Disease, a term encompassing Crohn's Disease and Ulcerative Colitis, two unique diseases of the gastrointestinal tract. Together, these two diseases are plaguing the youth of the nation, afflicting teens and young adults anywhere from age 15 to age 30. Although these diseases do have periods of remission, the active times are harsh and excruciating.

The small bowel in Crohn's patients is so heavily inflamed that it causes strictures and possible blockage of the bowel, while Ulcerative Colitis patients suffer from inflammation as well as sores on the inner lining of the colon. Those afflicted with IBD endure severe abdominal pain and cramping, and additionally may suffer weight loss, fever, anemia due to blood loss, strictures, and perforation of the bowel. While those suffering from these diseases endure their daily pain, scientists are working fervently to determine an exact cause of IBD. All that is known is an autoimmune response causes the bowel to become inflamed. Scientists are still in the dark as to what exactly is responsible for the autoimmune response. Genetic factors, infections, and immunological agents have all been considered as possible causes; however, no answers have emerged.

For IBD victims, even the act of identifying the disease can be a painful endeavor requiring several types of tests performed in order to diagnose the disease. Routine tests include the following: complete blood counts, antibody tests, x-rays, MRI, and various endoscopies. The endoscopies can include colonoscopies and sigmoidoscopies which are very uncomfortable for patients. Once all the tests are complete, the physicians use the information to evaluate how severe the disease is and determine the right course of treatment.

Current treatment options are few, and they tend to be extreme. Those with the diseases may try to control their diets to avoid foods that cause inflammations. Unfortunately, diet control can interfere with daily life and only offers short-term relief. Sufferers might also turn to medications to help control their inflammation, but again, those interfere with daily life and are not always effective. Regrettably IBD is a chronic condition and although medications can help many people with the disease a few must turn to surgery as their last option. For those suffering from Ulcerative Colitis, surgery may offer a cure. However, those enduring the pain of Crohn's disease are robbed of relief due to recurrent disease after surgery.

For those suffering from either form of IBD, there is hope. One scientist, Dr. Steven R. Tannenbaum, has been researching IBD at MIT in an attempt to identify the state of the disease without the use of colonoscopies. The ability for patients to identify what treatment works for them without additional discomfort of colonoscopies is a step toward a better future for those enduring IBD. He has enlisted the help of the Cooperative Human Tissue Network (CHTN) to supply high-quality tissue for his research endeavors. His research focuses on studying both normal and disease tissue in an attempt to understand the chemical differences between the two. He has been using formalin fixed paraffin embedded tissue from IBD patients, supplied by CHTN, and mouse models to look at serum proteomics. Dr. Tannenbaum and his team use Elisa Assays and Mass Spectrometry to identify biomarkers present during active and inactive periods of the disease, then analyze the data using statistics. They hope to identify specific biomarkers that are elevated or depressed during active and inactive times of disease in order to gauge the success of treatment in patients with IBD. The effectiveness of therapy differs for each individual and the ability to label which therapy is working for a specific person is a huge advantage in treatment. Biomarkers of inflammation would allow doctors to determine which treatment is most effective for their patient. Dr. Tannenbaum's research is offering hope to the grim situation that IBD presents.