

Altered Gut Microbiome in ME/CFS

In 2007 as a doctor specialized in treating patients with Myalgic Encephalomyelitis (ME)/Chronic Fatigue Syndrome (CFS), I was curious to see if there was a relationship of the patients' irritable bowel symptoms and their degree of fatigue and pain. Clinically I had noticed that when parasites were found in a patient's stool and treated, that afterwards, often in addition their fatigue going up a notch, sometimes their headache pain and general pain symptoms improved. I was intrigued. Dr. Alan Logan was able to secure private funding to look at a small group of my patients with ME/CFS and irritable bowel symptoms. We had 20 patients as controls and 20 patients that we treated with billions of probiotic bacteria: Lactobacillus casei strain Shirota for two months. We were hoping to see improvements in fatigue and pain in the patients. There was a rise in Lactobacillus levels as expected with the supplementation given to the patients. We were surprised to see an increase in the Bifidobacterium levels. We do not see improvement in their fatigue or pain levels. With experience, looking back, a two month protocol for supplementation with a probiotic was far too short a time.

What did surprise us was that the patients who were treated with a probiotic had significant improvement in their anxiety scores. It was possible that the decreased anxiety was a direct result of improved bowel function. We postulated that perhaps this was an example of enteric neuroscience with the bowel communicating directly with the brain through the vagal nerve. Perhaps, we wondered, if by changing the microbiota in the bowel, it helped to restore normal intestinal health, decrease intestinal permeability, reduce inflammation and cytokines and indirectly reduce anxiety. We knew that there was lots of room for further studies in this area.

A Venket Rao, Alison Basted, Tracey Beaulne, Martin Katzman, Christina Lorio, John Berardi, Alan Logan. **A randomized, double-blind, placebo-controlled pilot study of a probiotic in emotional symptoms of chronic fatigue syndrome.** Gut Pathogens, 2009, 1:6.

DOI: 10.1186/1757-4749-1-6

I was thrilled with this new article about gastrointestinal disturbances or irritable bowel syndrome and altered microbiota in patients with ME/CFS. Gastrointestinal disturbances are present in many patients with ME/CFS. According to the article by Giloteaux et al. dysbiosis or altered gut microbiome (types and numbers of bacteria present in the gut) is present in patients with ME/CFS. Dysbiosis of the gut microflora may contribute to ongoing symptoms of inflammation in patients with ME/CFS. Potentially, in the future, this could lead to better investigation and treatment for symptoms of dysbiosis or IBS in patients with ME/CFS.

Ludovic Giloteaux, Julia K. Goodrich, William A. Walters, Susan M. Levine, Ruth E. Ley and Maureen R. Hanson. **Reduced diversity and altered composition of the gut microbiome in**

individuals with myalgic encephalomyelitis/chronic fatigue syndrome. Microbiome (2016)
4:30 DOI 10.1186/s40168-016-0171-4

<https://microbiomejournal.biomedcentral.com/articles/10.1186/s40168-016-0171-4>

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