Bacteroides stercoris may become a biomarker for evaluating the clinical activity of ulcerative colitis. Stool was well-formed and of large mass. The patient initiated yoga 3x/wk. Advanced SCD foods were then introduced according to the SCD protocol and as tolerated. At month 3, the patient adhered to a strict SCD protocol, eliminating sugar, grains, starch and all forms of processed foods while adding home-fermented yogurt. The patient has completed 3 years with the SCD and plans to maintain the diet as part of a lifestyle change. Prospective studies are needed in adult IBD patients, including moderate-to-severe cases, to assess the long-term efficacy of the SCD using objective markers of response.

Methods: IBD disease activity scores were used to define clinical response. Metagenomic sequencing of donor, recipient, and 4 week post-FMT fecal samples was performed to define the CTM. Strain level tracking of the CTM confirmed that clinical response correlated with strain transferability. In addition, we defined a core TIM by IgA-seq that correlated with clinical response. In humanized mouse models, these TIM were found to induce IgA in a T cell independent manner. Colonyization of germ-free mice with a core TIM strain of Odoribacter induced IL-10-dependent, RORgt+/Foxp3+ iTreg cells and reduced the severity of transfer T cell colitis in mono-colonized Rag/- mice. Conclusion: Our data highlight an immune-reactive, core transferable microbiota in responders to FMT for UC. Using pre-clinical mouse models of colitis, we define the mechanistic impact of these TIM in shaping mucosal immunity and guiding the response to UC. This work provides a framework for rational selection of TIM for microbial-therapy in IBD.

Microbiome

BACTEROIDES SPECIES ARE USEFUL BIOMARKER OF CLINICAL ACTIVITY IN ULCERATIVE COLITIS

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Background: We previously reported that there were 13 species of Bacteroidetes phylum with significantly higher or lower relative abundance in patients with ulcerative colitis (UC) than healthy individuals. In this study, we investigated the correlation between Bacteroides species components in fecal samples and clinical evaluations of UC. Method: This study included participants above 20 years of age. Fecal samples were collected for microbial analysis from 54 patients who had active UC based on a Lichtiger’s clinical activity index (CAI) ≥ 4 or an endoscopic Mayo clinic score ≥ 1. DNA was extracted from the fecal samples and analyzed by next-generation sequencing (the Illumina MiSeq sequencing system) targeting hsp60. We verified associations between Bacteroides species and eMayo sum score (total of endoscopic Mayo clinic scores in each intestine: periphery of appendix vermiformis, cecum, ascending colon, transverse colon, descending colon, and rectum), Robarts Histopathology Index (RHI), and CAI. Results: Bacteroides uniformis (R = 0.44, p = 0.002) and four others significantly correlated with eMayo sum score. Alstipes shahi (R = 0.35, p = 0.02) and three others significantly correlated with RHI. Bacteroides rodentium (R = 0.37, p = 0.006) and two others significantly correlated with CAI. Furthermore, three Bacteroides species (Bacteroides stercoris, Bacteroides uniformis, and Parabacteroides merdae) correlated with two of three clinical evaluations, and the total relative abundance of these three species showed stronger correlation with eMayo sum score (R = 0.52, p = 0.00007). Conclusion: All eight Bacteroides species identified in this study represent negative correlation with the clinical activity, so these species are suggested to be lost by exacerbation. Bacteroides species, especially total relative abundance of three Bacteroides species (Bacteroides stercoris, Bacteroides uniformis, and Parabacteroides merdae) may become a biomarker for evaluating the clinical activity of UC.

CRITICAL ROLES OF DIETARY SIMPLE SUGARS IN COLITIS PATHOGENESIS

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The incidence of inflammatory bowel disease (IBD) is strikingly high in Western countries, implicating the role of Western diet in its etiology and pathogenesis. Western diet is characterized by high fat, low fiber, and high sugar. Despite clinical evidence of an association between high sugar diet and IBD susceptibility, the precise role of dietary simple sugars such as glucose, fructose, and sucrose in colitis pathogenesis is unknown. Using dextran sodium sulfate (DSS) and IL10-deficient mouse models of colitis, we studied the effect of simple sugars in colitis susceptibility. Mice were given high glucose, fructose or sucrose in the drinking water or left untreated before and during colitis induced by DSS. Sugar-fed mice exhibited increased colitis susceptibility evidenced by higher body weight loss, diarrhea, rectal bleeding, and severe histopathological...