Abstract

TITLE: The effect of the SCD diet on gut bacterial fingerprints in IBD

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ABSTRACT BODY: Aim: Specific Carbohydrate Diet (SCD) is a widely practiced diet used in the treatment of inflammatory bowel disease (IBD) by patients; and anecdotal evidence suggests it may effective. The main mechanism by which SCD is postulated to work is by changing the microbiome. Our aim was to compare the fecal microbiome in IBD patients on SCD compared to similar IBD cases not on SCD.

Methods: Fecal samples of 10 IBD patients on SCD and 8 controls not on SCD were collected anaerobically at a tertiary IBD center after IRB approval. Subjects who have been on an antibiotic within the last 12 weeks of sample collection were excluded. Fecal DNA was extracted; and the microbiome was fingerprinted using Length Heterogeneity PCR (LH-PCR), with eubacterial primers directed at the V1-2 hypervariable region of the 16s rDNA in triplicate, on an ABI capillary sequencer. Bacterial abundances at each peak corresponding to an operational taxonomic unit were calculated from the electropherograms using Peak Scanner Software and custom PERL scripts. The data was normalized and analyzed using principal coordinates analysis(PCO)with a Bray-Curtis measure.

Results: The mean age of the subjects were 37.5(23-56)yrs. Eight subjects (3male/5female) had Crohn's disease (CD) and ten subjects (5male/5female) had Ulcerative Colitis(UC)). In the SCD group, subjects were on the diet for a mean of 5.4(0.67-18.2)+/-5.9 yrs. Five subjects had ileal involvement, and all subjects except 3 had colitis. Age, disease duration, location, immunosuppressive use, CD complications were not different between the two study groups. PCO analysis of the entire dataset revealed two cases on SCD with markedly divergent fecal bacterial fingerprints (Fig1). On subgroup analysis, there was a separation of the SCD and control groups among subjects with UC (Fig 2), but not CD.