

Double-Blind Randomized Controlled Trial of Rifaximin for Small Intestinal Bacterial Overgrowth (SIBO) in Celiac Disease

Matthew Chang, MD,¹ Maria Minaya, DDS,¹ Jianfeng Cheng, MD, PhD,² Bradley Connor, MD,³ Suzanne Lewis, MD,¹ Peter Green, MD, FACG¹. 1. Department of Medicine, Columbia University College of Physicians and Surgeons, New York, NY; 2. Department of Medicine, Sound Shore Medical Center of Westchester, New Rochelle, NY; 3. Department of Medicine, Weill Medical College of Cornell University, New York, NY.

Purpose: Small intestinal bacterial overgrowth (SIBO) is one cause of a poor response to a gluten-free diet and persistent symptoms in celiac disease; a non-controlled trial has reported responses to the oral antibiotic, rifaximin.

Methods: This is a single-center, double-blind, randomized controlled trial of 50 patients with biopsy-proven celiac disease and persistent diarrhea, gas, bloating, and abdominal pain despite treatment with a gluten free-diet. They were randomized to placebo (n=25) or treatment with rifaximin 1200mg for 10 days (n=25). An H-lactulose breath test was performed, along with a 15 question survey (the Gastrointestinal Symptom Rating Scale, GSRS) at weeks 0, 2, and 12. Statistical analysis was performed using the chi-square test for categorical data, the two-sample t-test for continuous variables, and the nonparametric Wilcoxon test for GSRS scores.

Results: SIBO was seen in 59.1% at initiation of the study and was intermittently present in 12 patients receiving placebo. There was no difference in the baseline prevalence of SIBO between the placebo and treatment groups (52% vs. 68%, p=0.14). Completion of the study was achieved by 21 patients in the placebo group and 20 patients in the treatment group. Drop-outs occurred a weeks 0 (n=1), 2 (n=5), and 12 (n=3). By week 2, the prevalence of SIBO was decreased in the treatment group (63.6% vs. 36.4%, p=0.04), but this response is not sustained by week 12 (66.7% vs. 65%, p=0.91). Normalization of a baseline abnormal breath test was more likely in the treatment group than placebo group, but did not reach significance (40.9% vs. 18.2%, p=0.07). During week 2, patients in the placebo group with baseline abnormal breath tests appear to have higher GSRS-diarrhea scores (by 1.36 points, p=0.0013) than those with normal breath tests in the placebo group. Otherwise, GSRS scores were unaffected by treatment with rifaximin, regardless of presence of SIBO.

Conclusion: SIBO is common in celiac disease with persistent symptoms despite a gluten-free diet and it may be intermittent. Treatment with rifaximin does not appear to affect patients' reporting of gastrointestinal symptoms, but does produce an initial reduction in abnormal breath test results that is not sustained. A longer, higher dose or intermittent course of treatment may be required for a longstanding response.