

Hospital Center, Washington, DC; Surgery, Washington Hospital Center, Washington, DC and Gastroenterology, Washington Hospital Center and Georgetown University School of Medicine, Washington, DC.

Purpose: We reported that daily oral thiamine is not effective for treating thiamine deficiency after Roux-en-Y gastric bypass surgery (GPS); in contrast, in those patients with abnormal glucose-hydrogen breath tests, antibiotic therapy with oral thiamine is effective therapy. Small intestinal bacterial overgrowth (SIBO) interferes with micronutrient and macronutrient absorption from the small intestine and may reduce caloric intake. We hypothesize that antibiotic therapy for SIBO induces weight gain after GBS.

Methods: In this retrospective chart review; 17 female patients (age range 33–65 years; mean age 51 years) had Roux-en-Y GBS in 1999–2005. The study included: 1) post-operative patients who had both an abnormal glucose-hydrogen breath test and abdominal symptoms consistent with SIBO, who 2) received an antibiotic to treat bacterial overgrowth. Antibiotic was given for 7 to 10 days, once monthly. Sex, age, weight before and after receiving antibiotic, and the presence of or resolution of abdominal symptoms after antibiotic were recorded. Abnormal glucose-hydrogen breath test was defined by increase in breath hydrogen >20 ppm within 45 minutes after 50 grams glucose. Patients were seen 8 to 72 months after GBS (mean: 32 months). Resolution of abdominal symptoms was used to determine effectiveness of antibiotic therapy.

Results: Eight patients had weight gain (range: 0.5–7.2 kg; mean: 3.2 kg) 2 to 5 months (mean: 3.1 months) after beginning antibiotic therapy. Among these 8 patients, abdominal symptoms resolved in 7; among 9 patients with weight loss, only 3 had resolution of abdominal symptoms (Chi-squared 2×2 : $P = .03$). Nine patients had weight loss of 0.5 to 14.4 kg (mean: 4.6 kg) at 2 to 4 months (mean: 3.1 months). Abdominal symptoms resolved in 7 of 13 patients receiving metronidazole, 1 of 2 with amoxicillin/clavulanate, and 2 of 2 with rifaximin.

Conclusion: Weight gain in patients with SIBO receiving antibiotics was associated with resolution of abdominal symptoms. This supports our hypothesis that antibiotic treatment of bacterial overgrowth induces weight gain. Conversely, SIBO may promote weight loss after GBS. Weight gain noted after antibiotic treatment could be due to: increased caloric intake, resolution of abdominal symptoms, or increased macronutrient absorption.

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Celiac Disease in the Adult Community; Still a Rare Occurrence

Douglas J. Sprung, MD, Gregory M. Sprung, Maitland, FL.*

Purpose: To evaluate the prevalence of Celiac disease (CD) in a general community gastroenterology practice in Orlando, FL.

Methods: A retrospective computer review of all patient charts in our single specialty gastroenterology practice, with a diagnosis of CD was undertaken. Charts from 1/91 – 12/05 were reviewed. A diagnostic small bowel biopsy (SBB) or positive anti-gliadin Ab plus anti-endomyseal Ab (or anti-tTg Ab) were required for the diagnosis of CD. All characteristics, symptoms and laboratory values were examined.

Results: Of 70 patients with a computer diagnosis of CD, 30 charts were unavailable because they had been shredded due to inactivity for 7 years or more, or left the practice with a former partner. Of the remaining 40 patients, 10 did not meet criteria. 30 charts were reviewed. 11 (36%) were male, 19 (64%) female. The mean age was 55. The diagnosis of CD was made by blood tests alone in 4 patients, by SBB alone in 11, and by both in 15. Diarrhea occurred in 23 (70%), weight loss in 16 (53%) and anemia in 20 (66%). Anemia was borderline in 10, moderate in 2, severe in 1, iron deficient in 6 and macrocytic in 1. One patient had concomitant Crohn's disease (and dermatitis herpetiformis) and 4 had concomitant microscopic colitis. None developed cancer, requires steroids or failed to improve on a gluten free diet. Each physician diagnosed 1.3 patients with CD per year. A review of all SBB done over a one year period at a single community hospital revealed 3 cases of CD out of 570 patients, or a prevalence of 1/190. These were symptomatic patients who underwent gastroscopy.

Conclusion: 1. In a private adult GI practice, CD was a relatively rare diagnosis over a 15 year period. The average number of cases per year has remained stable. 2. The triad of diarrhea, weight loss and anemia was present in over 60% of patients, with 97% of all patients having at least one of these findings. 3. Microscopic colitis was the most common concomitant illness, Crohn's disease occurred cocommitently in only one instance. 4. Out of 570 symptomatic patients who underwent SBB to rule out CD, only 3 were positive (0.5%). 5. CD remains an uncommon diagnosis in the private community sector, with no evidence of an increasing prevalence over the past 15 years. It seems unlikely that there are a significant number of patients who go undiagnosed as has been suggested in the literature.

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Mechanism of Zinc Deficiency in Patients with Roux-en-Y Gastric Bypass Surgery

Hiral N. Shah, MD, Bikram Bal, MD, Frederick C. Finelli, MD, JD, Nancy M. Carroll, MD, John R. Kirkpatrick, MD, Timothy R. Koch, MD.*
Medicine, Washington Hospital Center, Washington, DC; Surgery, Washington Hospital Center, Washington, DC and Gastroenterology, Washington Hospital Center and Georgetown University School of Medicine, Washington, DC.

Purpose: Zinc is an essential component of the catalytic site of hundreds of different metalloenzymes where it functions as a Lewis acid. The small intestine is the main site of zinc absorption via transporter expression which is regulated by dietary zinc intake.

It has been reported that some patients become zinc deficient after Roux-en-Y gastric bypass, although the mechanism of this is unknown. Based on our ongoing work examining thiamine deficiency, we hypothesize that small bowel bacterial overgrowth can decrease small intestinal zinc absorption.

Methods: This is a retrospective review of 452 patients who underwent Roux-en-Y gastric bypass surgery from 1999–2005. All patients were identified who had measurement of serum folate levels. As a marker of small intestinal bacterial overgrowth (SIBO), elevated serum folate level (>14 ng/dL) has a reported specificity of 79%. Baseline patient demographics and characteristics including age, sex, BMI were recorded. There were 230 patients who had determination of serum folate level, and 172 patients who had both serum folate and serum zinc levels.

Results: There were 199 female and 31 male patients with average age of 46 years (range: 21–68 years). The mean body mass index was 53 kg/m² (range: 40–100). Of these 230 patients, 145 had elevated serum folate levels supporting a prevalence of 63% for SIBO. Of the 172 patients who also had serum zinc levels, in 54 patients with normal serum folate levels, 43 had normal serum zinc; among 118 patients with elevated serum folate, 78 had low serum zinc (Chi-squared 2×2 : $P < .001$).

Conclusion: Elevated serum folate, a marker for small intestinal bacterial overgrowth, is common after gastric bypass surgery. This study supports our hypothesis that small bowel bacterial overgrowth can decrease small intestinal zinc absorption. Since present physiological evidence supports zinc absorption primarily in the jejunum by a transcellular route involving a zinc-specific transporter, Zip4, further studies should be directed at potential post-operative changes in zinc transport and the potential for reversibility with treatment of small intestinal bacterial overgrowth.

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The Efficacy of the GLP-1 Agonist Exenatide in the Treatment of Short Bowel Syndrome

Mark Pimentel, MD, Benjamin Basseri, MD, Sheila Lezcano, BS, Kimberly Low, BS, Vicky Lees-Kim, RN, Tess Consantino, RN, Jeffrey L. Conklin, MD, Edy E. Soffer, MD.* *GI Motility Program, Cedars-Sinai Medical Center, Los Angeles, CA.*

Purpose: Short bowel syndrome (SBS) is a serious medical problem resulting in severe diarrhea and nutritional deprivation. The symptoms result from