

Optimal Testing for Diagnosis of Fructose Intolerance: Over-dosage Leads to False Positive Intolerance Test

TO THE EDITOR: We read with interest the recent article by Goebel-Stengel et al¹ and wish to express our appreciation and enthusiasm for their work on small intestinal bacterial overgrowth (SIBO) and carbohydrate intolerance in patients with irritable bowel syndrome (IBS). However, we have significant concerns regarding their methodology and basis for diagnosis of fructose intolerance.

Goebel-Stengel et al¹ used a supra-physiologic dose of 50 g fructose in 200 mL water for performing the fructose breath test. The rationale for this high dose is unclear, and whether healthy controls from their population can fully absorb 50 g dose of fructose has not been reported by these authors. If the test was positive, an additional breath test was performed with 25 g in 100 mL water. Patients were then classified as subjects with moderate symptomatic fructose malabsorption if they were positive with 50 g dose and negative with 25 g dose, and severe fructose malabsorbers as patients who were positive at both doses. Since almost all healthy subjects can absorb up to 25 g of fructose, and 70% malabsorb at 50 g dose,² it is unclear why the authors chose a 50 g fructose dose. Authors have partially justified this dose stating that daily consumption of fructose may be higher than 25 g, and fructose concentration less than 50 g has low yield. These assumptions are incorrect. Whilst it is possible that patients may consume up to 50 g fructose/day, this amount is usually not ingested all at once. Because the maximum absorptive capacity for a single dose is 25 g for healthy subjects, a higher dose will give a higher and false positive diagnosis of fructose malabsorption/intolerance. This finding may lead to incorrect diagnosis and unnecessary restriction of fructose products in diet, when in fact the subject may have normal fructose absorption capacity. Also performing 2 tests for identifying fructose intolerance seems impractical and should be avoided. Also, we disagree with recommendation that fructose breath test should be performed only for research purposes,³ as doing so will deprive patients of an im-

portant diagnosis. Also many of them will be falsely labelled as IBS.

It was somewhat surprising that the authors did not reference the only well controlled, dose-response, fructose absorption study in healthy humans.⁴ We believe that the ideal test dose for patients with suspected fructose intolerance is 25 g, and breath samples should be obtained every 30 minutes for 3 hours, and analyzed for H₂ and CH₄ levels.⁴ This standardized diagnostic approach for fructose breath test should facilitate better characterization of fructose malabsorption in patients with unexplained gas and bloating, and this has been shown to be clinically useful in a large group of 429 consecutive patients.⁵

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