Fructose Intolerance/Malabsorption and Recurrent Abdominal Pain in Children

PURPOSE OF THE STUDY. The goal of this study was to determine the incidence of fructose malabsorption in children who present with chronic or recurrent abdominal pain and whether a low-fructose diet improves their symptoms.

STUDY POPULATION. Study participants were recruited after retrospective chart review of consecutive patients from 2007 to 2009 without a specific etiology identified for chronic abdominal pain. A total of 222 children ages 2 to 19 years (64% female) who had been evaluated by a pediatric gastroenterologist for persistent abdominal pain completed the study.

METHODS. All enrolled participants underwent a breath hydrogen test (BHT) after a fructose ingestion dose of 1 g/kg (maximum: 25 g). A breath hydrogen value of ≥20 ppm from baseline was considered positive for fructose malabsorption. These participants, with the aid of a dietitian, underwent a low-fructose diet with subjective follow-up assessment of clinical symptoms.

RESULTS. A total of 121 (55%) of 222 participants had a positive fructose BHT result. All 121 participants completed a 2-month low-fructose diet, with 77% (P < .0001) experiencing clinical improvement. Fifty-four percent of the fructose-negative BHT participants reported resolution of symptoms without a low-fructose diet although this finding did not reach statistical significance (P = .37).

CONCLUSIONS. Not only is fructose malabsorption a common underlying etiology for pediatric functional abdominal pain, but intervention with a low-fructose diet is highly successful.

REVIEWER COMMENTS. The approach to evaluate an “adverse food reaction” should be to determine whether it is immune or nonimmune mediated. Although the history for fructose malabsorption will undoubtedly be inconsistent for an IgE-mediated anaphylaxis food reaction, the labeling of a patient with “functional abdominal pain” is equally unsatisfying for the family. Of note, many of the “high-fructose” foods are also the same foods causing oral allergy syndrome, an IgE-mediated process occurring after ingestion of raw fruits that share similar proteins to pollen allergens. Although a fructose BHT may not be readily available, this article provides an excellent fructose food avoidance table that should be considered a valuable resource for both pediatricians and allergists who are evaluating children with adverse food reactions resulting in abdominal pain or underlying chronic functional abdominal pain.
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