

Letter to the Editor

Use of “glucola alternatives” for cystic fibrosis-related diabetes screening

Dear Editor,

As the result of a joint effort between the Cystic Fibrosis Foundation (CFF), the American Diabetes Association (ADA), and the Pediatric Endocrine Society (PES), new guidelines regarding cystic fibrosis-related diabetes (CFRD) have recently been published [1]. The guidelines have emerged in response to the increasing prevalence of CFRD and the impact of CFRD on nutrition, body mass index (BMI), and pulmonary function. Because CFRD is often clinically silent, the guidelines recommend annual screening for CFRD starting at the age of 10 years with a 2-hour oral glucose tolerance test (OGTT) using the World Health Organization protocol [2], whereby the patient consumes a standard beverage (Glucola) containing 1.75 g/kg glucose (maximum 75 g) dissolved in water. However, as pediatricians know, many young children do not tolerate the glucola solution (often refusing to drink the necessary amount), making the test difficult to perform and/or interpret.

To address this problem, we have standardized other food/beverage choices (i.e., “glucola alternatives”) that provide a comparable glucose load to glucola in a form that is typically more appealing to children (see Table 1; values calculated using Nutritionist Pro Version 4.6.0. Axxya Systems. Stafford, Texas, 2011). Although glucola is still the preferred glucose substrate for the OGTT and our first choice for a glucose load in performing the test in our patients, the use of these “glucola alternatives” has not only been well-received by the patients and their families, but importantly has also increased the screening rate for CFRD in our pediatric CF clinic. The use of “glucola alternatives” in groups at high-risk for diabetes also has precedence; specifically, the use of jelly beans has been shown to yield comparable results with respect to glucose excursions as the use of glucola during OGTTs in women undergoing screening for gestational diabetes mellitus (GDM) [3,4]. Thus, although gastric emptying is sometimes slowed in patients with CF, the use of “glucola alternatives” – particularly solid “glucola alternatives” – may nevertheless provide CF providers an opportunity to assess glucose tolerance in a child who will not tolerate a liquid glucose load and who otherwise might not get tested for CFRD.

In summary, as more and more children with CF are being screened for CFRD per the recommendations of the new

Table 1
Glucola alternatives.

Liquid equivalents			
Liquid	Total volume	Carbohydrate content	Carbohydrates (g) per milliliter (mL)
Apple juice (Sun Cup)	6 containers (118 mL/4 fluid ounces) 708 mL/24 fluid ounces	78 g	0.11 g/mL
Grape juice (Sun Cup)	4 containers (118 mL/4 fluid ounces) 472 mL/16 fluid ounces	76 g	0.16 g/mL
Orange juice (Sun Cup)	6 containers (118 mL/4 fluid ounces) 708 mL/24 fluid ounces	78 g	0.11 g/mL
Soda (Coca-Cola)	2 United States cans (355 mL cans/12 fluid ounces) 710 mL/24 fluid ounces	78 g	0.11 g/mL
Candy equivalents			
Candy	Total weight/count	Carbohydrate content	Carbohydrates (g CHO) per gram (g)
Jelly beans (Starburst or Jelly Belly)	80 g/70 count	75 g	0.93 g CHO/g
Skittles candies original flavor	78 g/73 count	76 g	0.97 g CHO/g
Twizzlers (8 oz package) original strawberry	90 g/8 count	72 g	0.80 g CHO/g
Twizzler cherry “Nibs”	95 g/64 count	75 g	0.79 g CHO/g

“Glucola alternatives” amount is determined using patient’s current body weight (kilograms): Ratio = 1.75 g carbohydrate per kilogram of body weight with maximum carbohydrate load of 75 g.

Note: liquid equivalents are preferred over solid candy equivalents if tolerated.

guidelines [1], health care providers may need alternative glucose sources to adequately screen CF patients unable to tolerate glucola, and we suggest that these and other “glucola alternatives” be more rigorously studied.

References

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