Serial Celiac Screening Urged in All Type 1 Patients

ARTICLES BY BRUCE JANCIN
Denver Bureau

KEYSTONE, COLO. — All patients with new-onset type 1 diabetes should be screened for serologic evidence of celiac disease in the form of IgA tissue transglutaminase autoantibodies and, if seronegative and asymptomatic, screened again at least biannually until age 10 years, according to Dr. Marian Rewers.

Rescreening every other year is warranted because a sizeable minority of affected patients does not manifest celiac autoimmunity for several years or more after diabetes onset, Dr. Rewers asserted at a conference on the management of diabetes in youth.

Small bowel biopsy is appropriate in transglutaminase autoantibody–positive patients with symptoms attributable to celiac disease, said Dr. Rewers, professor of pediatrics and preventive medicine at the University of Colorado, Denver, and clinical director of the Barbara Davis Center for Childhood Diabetes. These include diarrhea, weight loss, abdominal pain, malnutrition, growth failure, pubertal delay, chronic fatigue, erratic blood glucose levels, and osteopenia. A finding of villous atrophy on intestinal biopsy is the definitive diagnostic test for celiac disease.

A lifelong gluten-free diet is strongly recommended in biopsy-positive individuals. It results in mucosal healing and complete clinical resolution in most patients. But if initiation of the diet is delayed in symptomatic patients, they may never catch up developmentally in terms of growth and bone density.

In contrast, intestinal biopsy shouldn't be recommended in asymptomatic screen-positive diabetes patients unless their tissue transglutaminase autoantibody level is high enough to confer a greater than 90% probability of a positive biopsy. The higher threshold for biopsy in asymptomatic patients is warranted because a negative biopsy in the setting of a low to intermediate autoantibody level gives a false sense of security that there is no future risk of overt celiac disease, according to Dr. Rewers.

He and his coinvestigators have analyzed a handful of the most widely utilized serologic transglutaminase tests and, for each test, quantified the autoantibody levels necessary to attain a greater-than-90% positive predictive value regarding biopsy results (J. Pediatr. 2005;146:494-9).

The celiac disease–screening recommendations he presented are the ones utilized at the Barbara Davis Center. They are more aggressive than those of the American Diabetes Association, which currently recommends serologic screening only for type 1 diabetes patients who are symptomatic for celiac disease (Diabetes Care 2008;31:12-54).

Dr. Rewers and his Denver colleagues argue for universal screening in children with type 1 diabetes based on the high prevalence and potentially serious implications of celiac disease in this population. In the general population, 1 in 100 children has IgA transglutaminase autoantibodies, but that figure climbs to 1 in 10 among those with type 1 diabetes. Most of these affected diabetic children are asymptomatic and thus are identifiable only through screening. And there is concern about the still-unclear long-term consequences of untreated subclinical celiac disease, he said at the conference, which was sponsored by the Barbara Davis Center, the University of Colorado, and the Children's Diabetes Foundation at Denver.

Rescreening is needed as some patients don't manifest celiac autoimmunity for several years after diabetes onset.

DR. REWERS

He and his coinvestigators have demonstrated in a study of 134 children with an average 4-year history of type 1 diabetes that the 71 who had screening-detected asymptomatic celiac autoimmunity also had a significantly lower body weight and body mass index and increased markers of bone turnover, compared with the antibody-negative group. Yet bone mineral density scores in the two groups were similar.

In all, 25 seropositive patients claimed to go on a gluten-free diet. At the 1-year follow-up, they had significantly lower glycosylated hemoglobin levels and higher BMIs than did those on a regular diet. Their autoantibody levels decreased but in most cases did not normalize, which suggested problems in compliance with the demanding diet. Bone turnover markers didn't change on a gluten-free diet over this relatively short time span (J. Pediatr. 2007;150:461-6).

"So the jury is still out on whether all patients with celiac autoimmunity need to be on a gluten-free diet and how stringent the diet should be," Dr. Rewers concluded. ■

Food Industry Responding to Needs of Diabetic Patients With Celiac Disease

KEYSTONE, COLO. — Many type 1 diabetic patients with comorbid celiac disease say the celiac disease is actually the harder of the two to deal with, according to a presentation at a conference on the management of diabetes in youth.

The gluten-free diet is particularly challenging for such patients. Patients with celiac disease often are asymptomatic, and because they already have one demanding lifelong chronic disease in the form of diabetes, they and their families need to be persuaded of the importance of following the diet on a lifelong basis. A couple of educational visits with a dietitian having expertise in both diseases can be helpful, according to dietitian and diabetes educator Gail Spiegel, a registered dietitian at the Barbara Davis Center for Childhood Diabetes. The center cosponsored the conference with the University of Colorado and the Children's Diabetes Foundation at Denver.

'Gluten-free' is a misnomer. Gluten is found only in wheat; harmful prolamins are also present in rye, barley, spelt, and triticale. All must be avoided.

Among the essential concerns in these patients are the following:

► Insulin needs might increase as a consequence of the improved carbohydrate absorption accompanying intestinal healing.

► Skill is needed to distinguish safe from unsafe grains and to decode confusing food product labeling.

► Avoiding cross-contamination, a common problem in families where not everyone has gone gluten-free, is essential.

► Eating out safely must be mastered.

► Tapping into resources including cookbooks, Web sites, sample menus and recipes, lists of gluten-free snacks, and support groups can be extremely valuable.

Ms. Spiegel noted that "gluten-free diet" is a misnomer. Gluten is found only in wheat, but prolamins harmful to patients with celiac disease are also present in rye, barley, spelt, and triticale. All must be avoided.

Many gluten-free food products are not fortified, so a gluten-free multivitamin is important. Also, gluten-free grains are often more carbohydrate-dense and lower in fiber. Relatively high-fiber, high-protein gluten-free grains include buckwheat, quinoa, amaranth, soy flour, and nut flours.

Oats are a kid-friendly source of dietary fiber. Oats are problematic, however, because most oats are contaminated, having been grown in the same field or processed in the same facility as gluten-containing grains. About one-half cup of dry uncontaminated oats per day has been shown to be safe in most children with celiac disease.

The Food and Drug Administration is in the process of finalizing language for a new, more informative gluten-free designation on food labels. Meanwhile the Gluten Intolerance Group of North America has attempted to fill the void by starting the Gluten-Free Certification Organization in 2005. Foods containing less than 10 ppm of gluten earn the group's gluten-free certification mark. Numerous food companies are participating.

The good news is that the food industry is responding to the needs of patients with celiac disease and their families.

"There are way more gluten-free foods available in the last few years than I've ever seen before," Ms. Spiegl noted. ■

Watch Diabetic Youth for Signs of Disturbed Eating

KEYSTONE, COLO. — Red flags for disturbed eating behavior in adolescent girls with type 1 diabetes include a persistently high glycosylated hemoglobin level, frequent episodes of diabetic ketoacidosis, and behaviors such as skipping insulin doses or underdosing in order to control weight, according to one expert.

Another warning sign is a pattern of skipping breakfast and/or lunch, followed by binge eating throughout the evening, Rita Temple-Trujillo said at a conference on the management of diabetes in youth. Distress regarding body weight and shape is also common among affected individuals, but it's a nonspecific indicator.

"It's rare that I see girls who don't have concern about body image. We're a weight-obsessed culture," said Ms. Temple-Trujillo, a clinical social worker at the Barbara Davis Center for Childhood Diabetes, which cosponsored the conference with the University of Colorado and the Children's Diabetes Foundation at Denver.

Pressed by a primary care physician in the audience for a few quick screening questions to help zero in on disturbed eating behavior in adolescent girls with diabetes, Ms. Temple-Trujillo's fellow panelist, Dr. Denis Daneman, suggested the following:

► Are you manipulating your insulin by omission or by changing the dose in order to control your weight?

► Are you dieting at the moment to control your weight?

► Are you exercising specifically to control your weight?

► Are you doing any other things specifically to control your weight?

"Those four questions, if you get honest answers, will probably give you most of the information you need," said Dr. Daneman, professor and chair of the department of pediatrics at the University of Toronto and pediatrician-in-chief at the Hospital for Sick Children there.

But getting honest answers to questions about eating and insulin-use patterns is a challenge because diabetic youths with disturbed eating behaviors feel great shame and a reluctance to disclose the details, according to Ms. Temple-Trujillo. "They feel like they've failed their families, their providers, and themselves. So I really feel that it's important to be nonjudgmental and supportive." ■