

Predictors of Gluten Avoidance and Implementation of a Gluten-Free Diet in Children and Adolescents without Confirmed Celiac Disease

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Objectives To determine independent predictors of gluten avoidance and of a physician's decision to initiate a gluten-free diet (GFD) in children and adolescents without confirmed celiac disease.

Study design We performed a structured medical record review of 579 patients aged 1-19 years presenting for evaluation of celiac disease between January 2000 and December 2010 at a large Boston teaching hospital. We collected data including demographic information, medical history, serology, small intestinal biopsy, history of gluten avoidance, and the postworkup recommendation of implementation of a GFD. Predictors of gluten-related issues were identified by multivariate logistic regression.

Results Among 579 children without a previous diagnosis of celiac disease (mean age, 8.7 years), 43 (7.4%) had ever avoided gluten. Independent predictors of gluten avoidance were irritability or poor temper (OR, 3.2), diarrhea (OR, 2.5), weight issues (OR, 0.4), pervasive developmental disorder (OR, 5.3), and family history of celiac disease (OR, 2.2). Among 143 children without confirmed celiac disease who underwent diagnostic evaluation, several predictive factors were associated with a physician-recommended/parent-initiated GFD: irritability (OR, 6.4), diarrhea (OR, 3.4), pervasive developmental disorder (OR, 7.9), and positive serology before the referral (OR, 4.3).

Conclusion Gluten avoidance among children and adolescents without a previous diagnosis of celiac disease is relatively common. The identified predictors suggest that gluten avoidance is associated with nonspecific behavioral and gastrointestinal complaints and perhaps with the perceived dietary responses in another family member thought to have celiac disease. (*J Pediatr* 2012;161:471-5).

Recent population-based studies suggest that celiac disease affects approximately 1% of the general population of industrialized countries.^{1,2} The prevalence has risen in children and adolescents over the past 2 decades.^{3,4} The current mainstay of management of celiac disease remains a strict lifelong gluten-free diet (GFD).⁵ However, dietary gluten avoidance requires remarkable effort from both the child and the family.⁶ Furthermore, in some settings, gluten avoidance can have disadvantageous effects on quality of life,^{7,8} self-perceived health,⁹ psychosocial dynamics,¹⁰ nutritional status,¹¹ and increased healthcare costs.¹² Concomitant with the increasing prevalence and awareness of celiac disease, anecdotal evidence suggests that gluten avoidance is prevalent among the general population without celiac disease. We recently found a higher rate of gluten avoidance in New Zealand children compared with the actual prevalence of celiac disease (5% vs 1%), and identified 3 independent predictors of gluten avoidance in children without a previous diagnosis of celiac disease.¹³

Nonspecific symptoms (eg, behavioral changes, bowel movement changes, subjective or vague abdominal complaints), suspected/diagnosed conditions (eg, wheat "allergy" or "intolerance," irritable bowel syndrome, pervasive developmental disorder [PDD, or autistic spectrum disorder]), or equivocal positive celiac disease serology may sometimes lead to a trial of gluten restriction before evaluation for celiac disease. Nevertheless, few studies support the beneficial effects of gluten-restricted diet in children with these nonspecific symptoms and conditions.^{14,15} Furthermore, little is known about the reasons for or predictors of gluten avoidance in US children and adolescents without a diagnosis of celiac disease. The aims of the present study were (1) to identify independent predictors of gluten avoidance in children without previously diagnosed celiac disease; and (2) to identify predictors of a physician's decision to implement a GFD in children and adolescents without confirmed celiac disease (after diagnostic evaluation).

Methods

We created a database of all patients who presented for an initial evaluation of celiac disease at Massachusetts General Hospital, a large Boston teaching hospital and referral center, between January 2000 and December 2010. Patients were identified using the *International Classification of Diseases, Ninth Revision, Clinical Modification*

EMA	Endomysial antibody
GFD	Gluten-free diet
PDD	Pervasive developmental disorder
TTG	Tissue transglutaminase antibody

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The authors declare no conflicts of interest.

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