

Celiac Disease in the Pediatric Patient

What is Celiac Disease?

Celiac disease is a common chronic condition that affects about 1% of the general population. It occurs in genetically predisposed individuals and is triggered by the ingestion of products that contain wheat, barley or rye, collectively known as “gluten”. Ingestion of gluten initiates an inflammatory cascade in the intestines that causes progressive destruction of the small intestinal villi.

Symptoms of Celiac Disease

Symptoms of celiac disease are highly variable and may be gastrointestinal or non-gastrointestinal as shown in the table.

- Symptoms may occur singly or in combination
- Age of onset can be any time from infancy to late in adulthood
- Young children tend to have predominantly gastrointestinal symptoms while older children and adults are more likely to have non-gastrointestinal manifestations initially

Because of the variable manifestations, a high index of suspicion for the disease and liberal use of screening tests is needed to avoid unnecessary delays in diagnosis.

Associated Conditions.

Some people are at increased risk for celiac disease because of an associated condition. These individuals may have no symptoms or very minor complaints but when investigated are found to have the intestinal damage. Groups at increased risk for celiac disease include:

- First degree relatives of an index case
- Turner syndrome
- Type 1 diabetics
- Selective IgA deficiency
- Down Syndrome
- Other autoimmune diseases (autoimmune hepatitis, thyroiditis)

Diagnosing Celiac Disease

Blood tests looking for specific antibodies that are found when the disease is active can be used to screen for celiac disease. Recommended tests include:

- Tissue transglutaminase antibody (TTG)
- Endomysium antibody (EMA)
- Deamidated gliadin peptide antibodies (DGP)

The TTG-IgA antibody provides the most cost effective and reliable test to screen for celiac disease. It can be combined with measurement of serum total IgA level to make sure the patient does not have selective IgA deficiency. Those with selective IgA deficiency should be screened using either the DGP-IgG or TTG-IgG antibody test. (See algorithm on back)

In children less than 2 years of age the TTG and EMA are less reliable so testing in this age group should use a combination of the TTG-IgA and DGP-IgG.

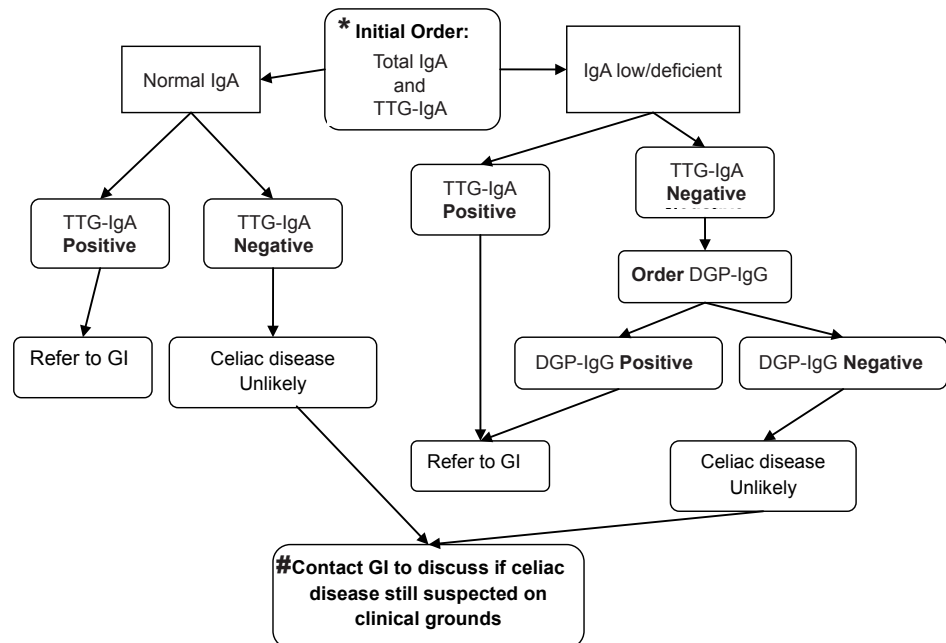
Serological testing for celiac disease is only reliable if the child is eating a regular gluten containing diet. Do not start a gluten free diet until the diagnosis of celiac disease is confirmed by a gastroenterologist.

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Algorithm for Diagnosing Celiac Disease

* For children less than 2 years of age request both TTG-IgA and DGP-IgG initially



If the clinical suspicion for celiac disease is high refer to GI even if the serological tests are negative

Who should be tested for celiac disease?

In children with typical GI symptoms (diarrhea, weight loss, and abdominal distension) testing for celiac disease antibodies should be one of the first tests ordered. For those with less typical symptoms consider testing if no other cause for the symptoms can be identified. Testing can be considered in those at increased risk for celiac disease even if they are asymptomatic.

Can celiac disease be confused with other conditions?

Because the manifestations of celiac disease are so variable, celiac disease can be confused with many other conditions. Two conditions that cannot be differentiated from celiac disease on clinical grounds alone are:

- Wheat allergy
- Non-celiac gluten sensitivity

Non-celiac gluten sensitivity is defined as a condition causing symptoms that improve on removal of gluten from the diet in the absence of positive tests for wheat allergy or celiac disease. Hence it can only be considered as a possible diagnosis after both celiac disease and wheat allergy have first been excluded. Differentiating celiac disease from these conditions is important as the dietary restrictions may not be as strict as they are for celiac disease and hence less burdensome to the family.

Treating Celiac Disease

Treatment for celiac disease entails adherence to a strict gluten free diet for life. In most cases this will result in complete symptom resolution and recovery from the intestinal damage.

Following a gluten free diet is not easy, has quality of life implications and increases the cost of food significantly. Therefore it is essential to confirm the diagnosis before prescribing this lifelong dietary change. Because gluten is found in many processed foods, newly diagnosed patients should be referred to a nutritionist with special expertise in celiac disease for education on gluten avoidance and optimizing nutrition. It is also recommended to refer all patients to a celiac support group.

For more information regarding test availability or specimen requirements, please call (800) 934-6575 or visit NationwideChildrens.org/Lab.