

Anti human Tissue Transglutaminase Antibodies

(IgA & IgG)

مقدمة :-

انزيم **Tissue transglutaminase** مهم فى التئام الانسجة ولكن احيانا تتكون اجسام مناعية مضادة تدمر هذا الانزيم وينتج عن ذلك مرض يسمى **Celiac disease** وهو مرض مناعى وراثى فى الاطفال والبالغين وله اسماء اخرى **sprue** او حساسية القمح وهو الاشهر **gluten-sensitive enteropathy** وفيه يتم تدمير وتهتك للخلايا المبطنة للامعاء بعد اكل منتجات من القمح او الحبوب بوجه عام ويترتب على ذلك سوء امتصاص وما يصاحبه من سوء تغذية مع مجموعة اخرى من الاعراض كالاتيميا والتعب الشديد والام العضلات وربما اكتئاب مع اسهال او امساك

اذا يتكون ما يسمى

Anti Tissue transglutaminase antibodies (IgA & IgG) TTG<IgA-IgG

لتشخيص **Celiac disease** :-

1- اختبارات معملية

A-TTG antibodies

وهو الاختبار الاول والافضل لشدة حساسيته وتخصصيته مقارنة بالتحاليل الاخرى

- EMA - Anti-endomysial
- IgA
- Gluten antibodies

2- تحليل عينة من انسجة الامعاء

3- تجربة اعطاء المريض اكلات خالية من الجلوتين وملاحظة اختفاء الاعراض ملحوظة :-

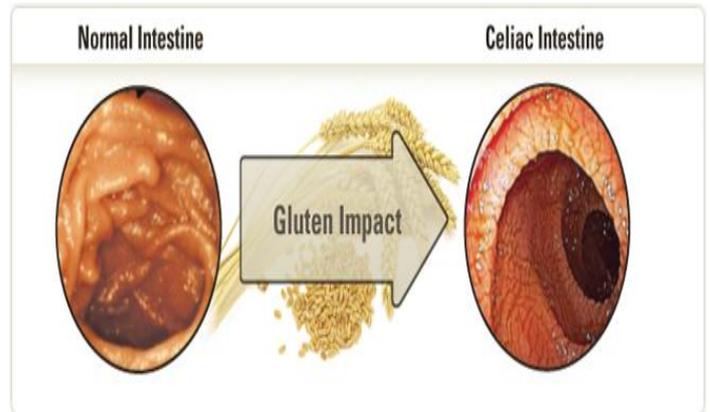
يجب ان يكون المريض مستمر فترة على وجبات متضمنة القمح ومشتقات الحبوب التى بها جلوتين .

What IS Celiac Disease? ^{1&2}

• Celiac disease (CD), also known as celiac sprue or gluten-sensitive enteropathy,

- It is a genetically linked autoimmune disorder that can affect both children and adults.
- When people with celiac disease eat certain grain-based products that contain gluten, it sets off an immune response that causes damage to the small intestine.
- This, in turn, interferes with the small intestine's ability to absorb nutrients found in food, leading to malnutrition and a variety of other complications.

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Who Has Celiac Disease? ^{1&2}

- Celiac disease is the most common genetic autoimmune disease in the world.
- Celiac disease is estimated to affect at least 1% of the worldwide population.
- Celiac disease occurs in:
 - a) 3.9 -12.3% of people with **Type 1 Diabetes**
 - b) 5-12% of people with **Down syndrome**
 - c) 20% of people with **collagenous colitis**
 - d) 4.5% of first **degree relatives** of people with **Celiac disease**



The many clinical faces of celiac disease

How is Celiac Diseases Diagnosed? ^{1&2}

1. Serological tests

- **IgA**; status must be known
- **Gluten Autoantibodies** (These are IgA based tests accurate only while on a gluten containing diet)

- EMA - **Anti-endomysial**
- TTG - **Anti-tissue transglutaminase**
- DGP - **Deamidated Gliadin Peptide**

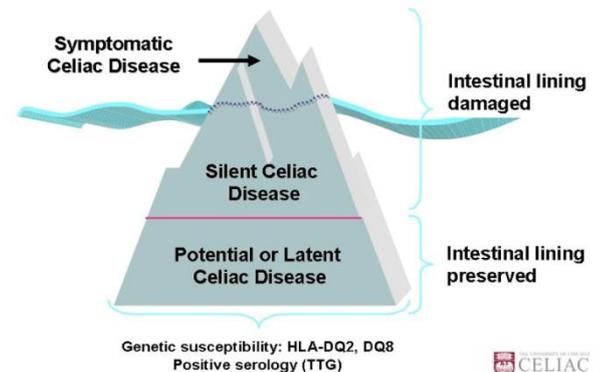
2. A small bowel biopsy to assess gut damage.

3. Implement the gluten-free diet.

(NOTE: Diagnostic tests should be performed before restricting gluten, to ensure the most accurate and timely diagnosis.)

**** **Gene Testing: HLA-DQ Typing:** it is not required for diagnosis but to exclude the probability of developing celiac disease

The Celiac Iceberg



Diagnostic Testing

- Preferred test: IgA anti-TTG
 - If IgA normal: 95% sensitive/specific
 - Poor test if IgA-deficient
- If IgA deficient: DGP
 - Alternative test: IgG TTG
- HLA-DQ2 and -DQ8
- In children < 2 years, IgG TTG alone or with DGP
- All patients must be on gluten-containing diet before testing

Anti-Tissue Transglutaminase Antibodies (IgA & IgG): 3,4,5&6

- A. Tissue transglutaminase** is an enzyme that repairs damage in the body. People with **celiac disease** often make antibodies that attack tissue transglutaminase.
- B.** They are called anti-tissue **transglutaminase antibodies, or immunoglobulin A (IgA) antibodies**
- C. Aim:** This test is used to screen for celiac disease. It also monitors the progress of people with the condition. It is one of several blood tests that may be used to help diagnose celiac disease.
- D. Advantages:**
- ✓ **†TGA** assay is the first choice serological test in screening for CD due to its High **sensitivity (up to 98%)** and high **specificity (around 96%)**
 - ✓ It correlates well with EMA-IgA and biopsy. **However**, it represents an improvement over the antiendomysial antibody assay because it inexpensive, rapid, is not a subjective test
 - ✓ It also demonstrates a remarkable negative predictive value approaching **100%** and, therefore, represents an **excellent tool** in excluding CD in both high and low risk groups
- E. Method:** Immulisa™ Celiac †TG is a unique immunoassay utilizing special chemistry of detecting antibodies to †TG by Enzyme Linked Immunoassays (ELISA) method
- F. Interpretation:**
- ✓ **Increased:** Moderate to strong positive of IgA-anti-†TG, a diagnosis of celiac disease is likely and the patient should undergo biopsy to confirm the diagnosis.

Test Name	• Antihuman Tissue Transglutaminase (hu †TG) Screen IgG & IgA Tests
Sample Type	• Serum/Red Stoppered Vacutainer
Methodology	• Enzyme Linked Immunosorbant Assay (ELISA)
Setup Time	• Tuesday/Every week
Turn Around Time	• The same day of setup time
Price	• 210 L.E /Each Test
Precautions	• Should be performed before restricting gluten
References	<ul style="list-style-type: none">• 1. Center for Disease Control. Peter H. R. Green et al. "Economic Benefits of Increased Diagnosis of Celiac Disease in a National Managed Care Population in the United States." J Insur Med 40 (2008): 218-228. Cranney A, et al. "The Canadian Celiac Health Survey." Dig Dis Sci.52.4 (2007): 1087-95.• 2. http://www.csaceliacs.info/diagnosis_of_celiac_disease_fact_sheet.jsp• 3. http://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=167&ContentID=antitissue_transglutaminase_antibody• 4. http://www.medscape.com/viewarticle/761351• 5. http://www.mayomedicallaboratories.com/interpretive-guide/?alpha=T&unit_code=82587• 6. Sárdy M, et al. Tissue transglutaminase ELISA positivity in autoimmune disease independent of gluten-sensitive disease. Clin Chim Acta. 2007;376:126-35

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