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GLUTEN SENSITIVITY

Differences between celiac disease and gluten sensitivity

A major international study on gluten sensitivity conducted by the Maryland School of Medicine, Baltimore, USA, in collaboration with the Seconda Università degli Studi di Napoli, Italy, has recently been published in the renowned scientific journal, BMC Medicine. For the first time, researchers have been able to distinguish the differences between celiac disease and gluten sensitivity on a molecular level and in terms of immune reaction. Celiac disease is activated by an auto-immune mechanism in which the immune system reacts to the protein gluten and causes changes to the intestinal mucosa. Gluten Sensitivity is a congenital immune mechanism which does not affect intestinal mucosa. It is estimated that approximately 6 % of the population is affected by Gluten Sensitivity. The definition of gluten sensitivity would be those cases of intolerance to gluten from which it is possible to exclude celiac disease (due to negative results for the serological markers) and wheat allergy (negative specific IgE), in which the intestinal mucosa is virtually normal on intestinal biopsy.

	CELIAC DISEASE	GLUTEN SENSITIVITY
Time between exposure to gluten and onset of symptoms	weeks - years	hours - days
Pathogenesis	autoimmune (adaptive immunity)	Immune - mediated? (Innate immunity?)
HLA	HLA restricted (~95 % of cases)	Not HLA restricted (50 % DQ2/8 negative)
Autoantibodies	nearly always present	AGA antibodies frequently positive (50 %)
Enteropathy	nearly always present	Marsh classification of 0 to 1
Symptoms	gastrointestinal and extraintestinal symptoms (can be confused with gluten sensitivity)	gastrointestinal and extraintestinal symptoms (can be confused with celiac disease)
Prognosis	Comorbidity, long-term consequence	No comorbidity, long-term consequence unknown

Gluten sensitivity mainly affects adults, and is characterized by gastroenterological symptoms, such as swelling, diarrhea, and abdominal pain, as well as nonintestinal symptoms such as a sensation of mental confusion, headache, limb and muscular pains. The symptoms generally appear a few days (or hours) after the individuals have eaten foods containing gluten.

Diagnostic process

As no sensitive or specific markers are available at the present time, GS diagnosis is fundamentally based on clinical criteria, possibly confirmed up by a gluten reexposure test. A case history approach is important in the diagnosis of GS. It is necessary to establish whether the individual has signs and symptoms that might be associated with GS. Consequently, the first step to undertake is to rule out CD and wheat allergy (see chart). HLA classification is not greatly useful indiagnosos, however (only 50 % DQ2/ DQ8 positivity) and the first generation IgA or IgG antigliadin antibodies are frequently positive (50 %), while there is an absence of anti-tissue transglutaminase (tTG) antibodies The next step is an endoscopic examination with biopsy. In GS a Marsh classification of 0 to 1, where 0 stands for normal villi and 1 for an infiltrative lesion with normal villous architecture and crypt size, but with an increase in the number of intraepitheelial lymphocyte IEL) to around 60.

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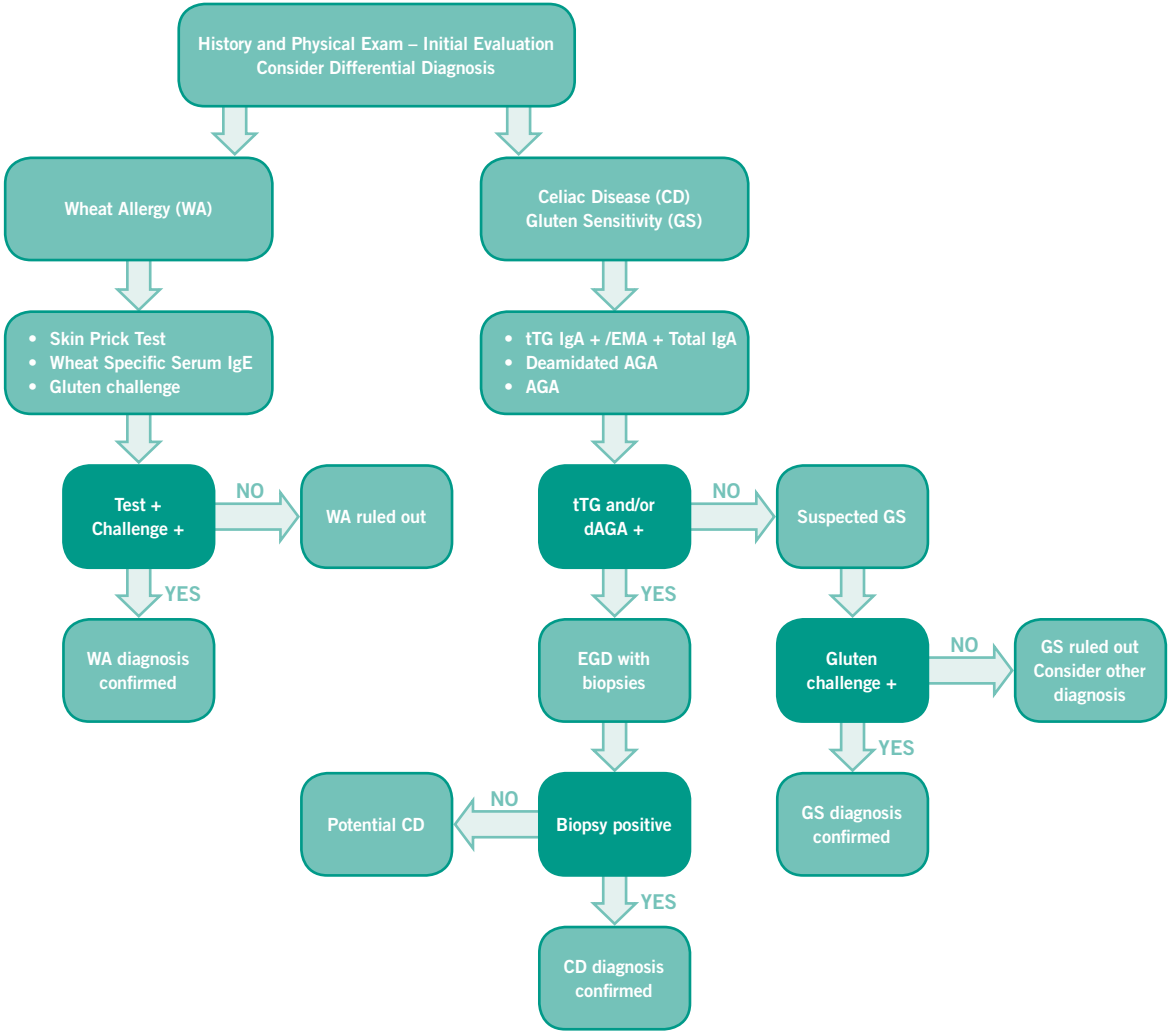
ALGORITHM TO DIFFERENTIATE GLUTEN REACTION



Typical signs and symptoms of GS

- Abdominal pain (68%)
- Eczema/skin rash (40%)
- Fatigue (35%)
- Headache (35%)
- Mental confusion (34%)
- Diarrhea (33%)
- Abdominal swelling (25%)
- Anemia (20%)
- Constipation (20%)
- Lipothymia/presyncope (20%)
- Numbness in the limbs and painful limbs (20%)
- Epigastric burning snesation (15%)
- Nausea and vomiting (15%)
- Glossitis (10%)
- Intestinal rumbling (10%)

Reference: Sapone Anna et al. (2011) Divergence of gut permeability and mucosal immune gene expression in two gluten-associated conditions: celiac disease and gluten sensitivity. BMC Medicine 2011, 9:23.
First Consensus Conference on Gluten Sensitivity, London 11/12 february 2011