

POSSIBLE LINK BETWEEN SCHIZOPHRENIA AND CELIAC DISEASE / GLUTEN-SENSITIVITY

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Possible link between Schizophrenia and celiac disease / gluten-sensitivity.

Background: Celiac disease is an immune-mediated reaction to gluten, presenting with diarrhea, weight loss, abdominal complaints and a range of less common associated neurologic and psychiatric symptoms. Evidence of a link between schizophrenia and celiac disease dates back as far as 1961. A theory for this association presented by Dohan was that gluten serves as an environmental trigger in individuals predisposed to schizophrenia. This theory was supported by two series of ecologic data: the first showing that the prevalence of schizophrenia was decreased in time periods of low grain consumption and the second comparative study showing that the prevalence of schizophrenia was lower in geographic areas of low grain consumption. Recent data from Denmark show elevated prevalence of celiac disease in cases of schizophrenia and in their relatives. **Aims:** To evaluate the prevalence of celiac disease and gluten-sensitivity in subjects with schizophrenia. **Methods:** A series of 1419 blood samples of subjects with schizophrenia from The National Institute of Mental Health Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) Project were studied. All samples were screened with: tTG-IgA and AGA-IgA, AGA-IgG. All positive tTG-IgA samples were confirmed with EMA. **Results:** The serological test combination used to detect celiac disease (EMA positive and/or tTG-IgA and AGA IgA positive) identified 24 positive subjects, suggesting that the prevalence of celiac disease among schizophrenic patients is double (1:59) when compared to that reported in healthy individuals (1:133). Our screening revealed also an extremely elevated number of AGA IgA-positive subjects (280) and an unusually low AGA IgG positive subjects (6). The number of subjects exclusively positive for AGA IgA, a potential marker of gluten sensitivity, suggests a high prevalence of this condition (1:5) among the CATIE cohort. **Conclusions:** These preliminary observations suggest that within the CATIE subjects with schizophrenia there is a mixture of two populations: celiac patients (1:59) and gluten-sensitive patients (1:5). Since changes in behavior have been described both in celiac disease and gluten sensitivity, we conclude that 1 out of 5 schizophrenic patients in this cohort could potentially benefit from a gluten free diet.

Definitions

- **Celiac Disease:** is a genetic disorder affecting children and adults. People with Celiac Disease are unable to eat foods that contain gluten, which is found in wheat and other grains. In people with Celiac Disease, gluten sets off an autoimmune reaction that causes the destruction of the villi in the small intestine.
- **Gluten Sensitivity:** is not considered a genetic disorder. People with Gluten sensitivity experience distress/symptoms similar to Celiac Disease when eating gluten containing products and show improvement of symptoms when they follow a gluten free diet. There is no indication the gluten consumption caused destruction of the vili in the small intestine.

	Celiac Disease	Gluten Sensitivity
Gluten free diet beneficial	Yes	Yes
(tTg-IgA and EMA) Positive	Positive	Negative
AGA-IgA &/or AGA-IgG antibodies	Positive and/or Negative	Positive
Damage to intestinal villi	Yes	No
Auto-Immune Disorder	Yes	No
Genetic Disorder	Yes	No

Aims

- To evaluate the prevalence of celiac disease and gluten sensitivity in subjects with schizophrenia.

Background

Celiac disease is an immune-mediated reaction to gluten, presenting with diarrhea, weight loss, abdominal complaints and a range of less common associated neurologic and psychiatric symptoms. Evidence of a link between schizophrenia and celiac disease dates back as far as 1961. A theory for this association presented by Dohan was that gluten serves as an environmental trigger in individuals predisposed to schizophrenia. This theory was supported by two series of ecologic data: the first showing that the prevalence of schizophrenia was decreased in time periods of low grain consumption and the second comparative study showing that the prevalence of schizophrenia was lower in geographic areas of low grain consumption. Recent data from Denmark show elevated prevalence of celiac disease in cases of schizophrenia and in their relatives.

Background

- Celiac Disease CD and schizophrenia (SZ) have approximately the same prevalence but epidemiologic data show higher prevalence of CD among SZ patients.
- The reason for this higher co-occurrence is not known but the clinical knowledge about the presence of immunologic markers for CD or gluten intolerance in SZ patients may have implication for treatment.

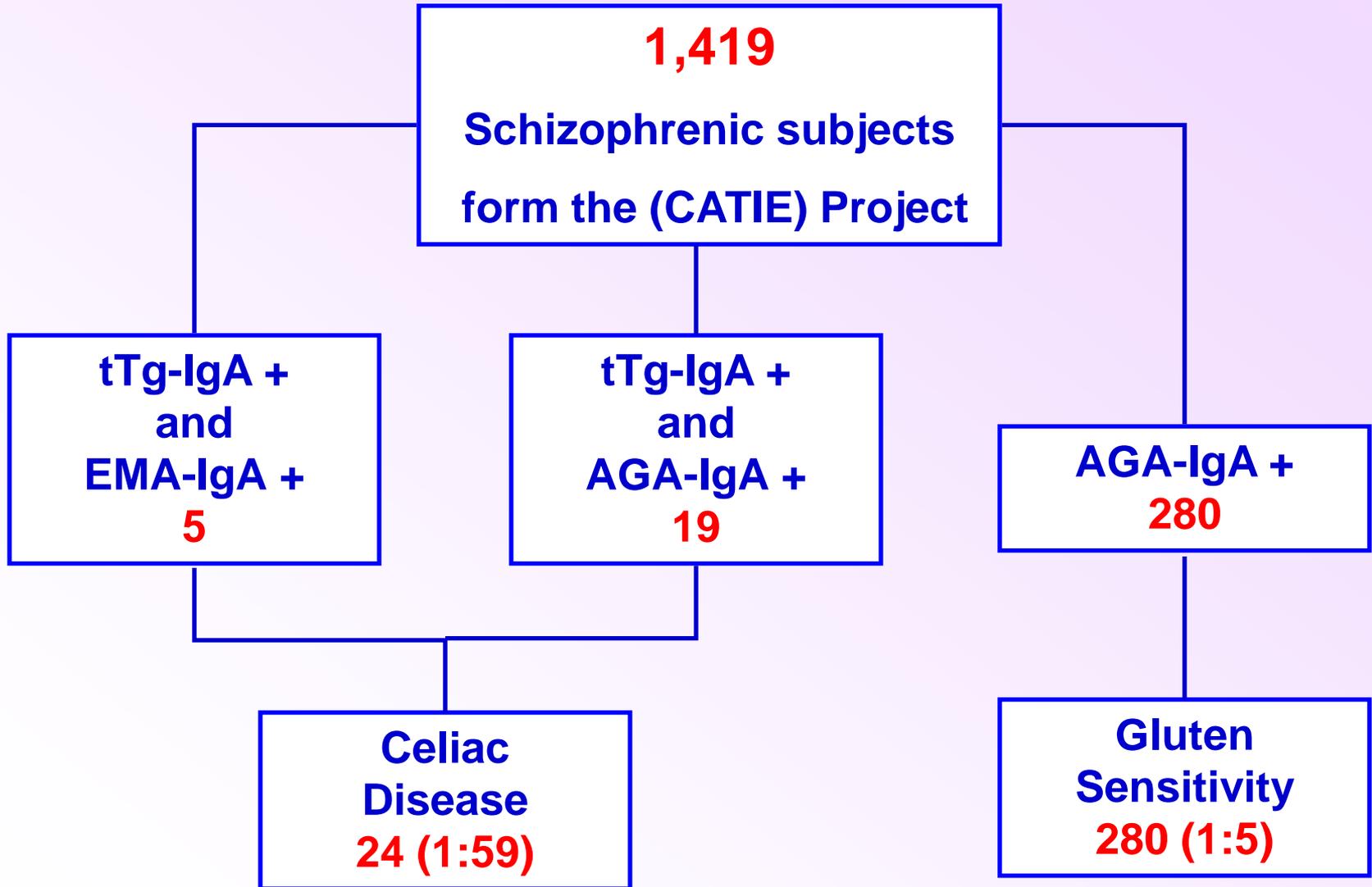
Methods

- A series of 1419 blood samples of subjects with schizophrenia from The National Institute of Mental Health Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) Project were studied.
- All samples were screened with: tTG-IgA and AGA-IgA, AGA-IgG. All positive tTG-IgA samples were confirmed with EMA.

Results

	Assay Combinations	N=1419	Prevalence
Celiac Disease	tTG-IgA + & EMA + and/or tTG-IgA + & AGA-IgA +	24 (2%)	1:59
Gluten Sensitivity	AGA-IgA +	280 (20%)	1:5

Results



Prevalence of CD in the General
Population (N= 4,126): 1:133

Prevalence of GS in the General
Population (N= 5,896): 1: 17

Conclusions

These preliminary observations suggest that within the CATIE subjects with schizophrenia there is a mixture of two populations:

Celiac patients: N=24 (1:59)

Gluten-sensitive patients N=280 (1:5)

Since changes in behavior have been described both in celiac disease and gluten sensitivity, we conclude that:

- **1 out of 5 schizophrenic patients in this cohort could potentially benefit from a gluten free diet.**