SydPath
ST VINCENT'S PATHOLOGY

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COELIAC DISEASE INFORMATION SHEET

INTRODUCTION

Coeliac disease, or gluten sensitive enteropathy, results from an immune-mediated damage to the small intestine. It is triggered by an immune response to the gliadin peptides of gluten, a component of wheat, barley, rye and oats.

DIAGNOSIS

Autoantibodies in Coeliac disease

The diagnosis is dependent on characteristic histological changes found on small bowel biopsy and improvement on a gluten free diet. However, a number of autoantibodies have a strong association with coeliac disease and are used as screening tools. These include antibodies against the intestinal enzyme tissue-transglutaminase (TTG), and those against deamidated gliadin peptides. SydPath performs IgA anti-TTG and IgA anti-deamidated gliadin antibody testing on serum. Both these antibodies can be ordered as "coeliac disease serology" or ordered individually.

Anti-transglutaminase antibodies

Anti-TTG IgA antibodies have a high sensitivity and specificity and are recommended as the better screening test for coeliac disease and levels decrease in response to gluten free diet. However, lower level anti-TTG antibodies can occur in normal subjects of those with autoimmune disorders, complicating the interpretation of these results. Conversely the test may be false-negative in those with IgA deficiency. Further supplemental testing for the presence of HLA-DQ2 or DQ8, may further substantially reduce false positive rates

Anti-gliadin antibodies

IgG anti-gliadin antibody immunoassay, using deaminated gliadin peptides, has better sensitivity and specificity than the earlier conventional anti-gliadin assay with unmodified peptides as substrates. As this assay measures IgG antibodies, it may also be useful in subjects with IgA deficiency. A gluten free diet can reduce the titre of this antibody and in some circumstances lead to a negative result.

SUPPLEMENTAL TESTS

Immunoglobulin IgA levels

IgA deficiency occurs more frequently in patients with coeliac disease (approx 2%) than in the normal population. Therefore, a concurrent IgA estimation should be requested when ordering coeliac serology, to exclude false negative TTG-IgA antibody result due to IgA deficiency.

HLA typing

TTG or gliadin antibody testing, especially when applied to low risk populations, may have a significant false positive rate. HLA typing for DQ2 and DQ8 alleles may be used to help identify false positive serology results. More than 99% of patients with coeliac disease are HLA-DQ2 and/or DQ8 positive. Thus, the absence of HLA alleles DQ2 or DQ8 almost certainly rules out coeliac disease.

HLA typing may also be used to rule out coeliac disease in patients with indeterminate serology or small bowel biopsy results, or for people who are already on a gluten free diet. Because of the high prevalence of these alleles in the population (about 25%), the presence of HLA-DQ2/DQ8 is not useful in confirming the diagnosis of coeliac disease.

INTERPRETATION

TTG and gliadin antibody tests are screening assays to identify those requiring further investigation to determine if coeliac disease is present. Depending on the clinical context, HLA typing for the presence of HLA DQ2 or DQ8, can be used to reduce the false positive rate from these assays. Ultimately, a small bowel biopsy is required to confirm the diagnosis of coeliac disease.