MELBOURNE PATHOLOGY
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Coeliac screening at Melbourne Pathology

Insight – March 2015

- When being used for diagnosis, Coeliac serology is only reliable if performed while the patient is on a gluten containing diet.
- It is reasonable to perform both IgA TTG and IgG DGP as a Coeliac screen without the need to perform total IgA levels.
- The sensitivity and specificity of the IgA TTG/IgG DGP screen is high but not perfect. If further clarification is required, HLA DQ2/DQ8 genotyping and/or endoscopy and biopsy should be considered.

What is Coeliac Disease?

Coeliac Disease (CD) is an autoimmune condition that occurs in genetically predisposed individuals after exposure to dietary gluten. With the widespread use of serological casefinding, the prevalence of CD is thought to be 1:100[1]. Patients with CD may not have the classical gastrointestinal symptoms but may present with other problems such as osteoporosis or unexplained iron deficiency. The detection of CD, even in the absence of gastrointestinal symptoms, is important as persistent villous atrophy associated with gluten ingestion may be associated with complications either due to malabsorption or the potential development of lymphoma[2]. Once diagnosed, CD is treatable with a gluten-free diet.

Coeliac Testing

Serological screening for CD relies on the detection of antibodies either of the IgA or IgG class. IgA based tests have traditionally been preferred due to their higher specificity. IgA and IgG antibodies are classified by the antigen towards which they are directed: transglutaminase (TTG), Endomysial (EMA), gliadin (AGA) and deamidated gliadin peptides (DGP). Patients must be on a gluten containing diet for the serology to be reliable.

Previously, requests for a Coeliac screen at Melbourne Pathology were tested for IgA TTG and IgA EMA. Only IgA antibodies were used in the screening process due to concerns about the specificity of IgG antibodies, whether they be TTG, EMA or Gliadin. IgG based serology was only recommended for children < 2 years old (due to low levels of serum IgA in this group) and in patients with documented total IgA deficiency where IgA based serology is less sensitive. Therefore, a follow on test was required if the IgA based test was negative and clinical suspicion of CD persisted. If the total IgA was low, an IgG based test was recommended.

Five years ago, Melbourne Pathology started performing an assay for deamidated gliadin peptides (DGP) antibodies in combination with a TTG test for all coeliac screen requests. DGP antibodies demonstrated much greater sensitivities and specificities than traditional gliadin antibodies which lack sensitivity and specificity and are therefore not recommended in Coeliac case finding.

Recently there has been a significant amount of research investigating the diagnostic use of antibodies to DGP including a metanalysis and a large prospective study. The results indicate that IgG DGP is generally not as sensitive as IgA TTG, but that it has high specificity (>90%) and that it has high sensitivity in IgA deficient patients. As specificity is comparable to TTG IgA, it is reasonable to perform both IgA TTG and IgG DGP as a screen without the need to perform total IgA levels, as the IgG DGP measurement is sensitive and specific enough for Coeliac Disease even in the setting of total IgA deficiency.

Diagnosis of Coeliac Disease

The sensitivity of the IgA TTG/IgG DGP screen is high, but not perfect. Therefore if the screen with IgG DGP and IgA TTG is negative and a high suspicion of CD persists (eg. Dermatitis herpetiformis, type 1 diabetes mellitus, autoimmune thyroid disease, family history of Coeliac Disease or suggestive clinical features such as severe diarrhea, weight loss, or persistent anemia), CD is not excluded and consideration of HLA DQ2/DQ8 genotyping or referral for endoscopy and biopsy should be considered.

As the diagnosis of Coeliac Disease has a significant impact on the patient's lifestyle, the current recommendation is that the diagnosis always be confirmed with the gold standard, upper gastrointestinal endoscopy and duodenal biopsy. Furthermore, no serological tests demonstrate 100% sensitivity and in cases where a high index of suspicion of Coeliac Disease persists and serology is negative, consideration should still be given to endoscopy and duodenal biopsy.

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Coeliac Screening at Melbourne Pathology

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Dr Unglik joined Melbourne Pathology in February 2010 as a Consultant Immunopathologist. He is also a Consultant Clinical Immunologist and Allergist in the Department of Clinical Immunology and Allergy at the Royal Melbourne Hospital where he is also Consultant Immunopathologist in the Department of Pathology.

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