Publication of the Month

May 05/07: Diagnostic Algorithm for Coeliac Disease

It is estimated that the ratio of known to undiagnosed cases of coeliac disease is 1:7. This suggests a failure in case finding for this disease. The median delay in diagnosis ranges from 5 to 11 years. Serological markers are a cheap and non-invasive method for clinicians to identify celiac patients. However, the internationally accepted gold standard diagnostic test is the demonstration of villous atrophy on a duodenal biopsy. Because of the limitations of endoscopy, antibody negative coeliac disease, and delays in diagnosis, many centres around the world suggest or recommend routine duodenal biopsy. The reported prevalence of coeliac disease when taking a routine duodenal biopsy ranges from 1.0% to 5.2%. The authors of the following article devised and evaluated a clinical decision that used a combination of pre-endoscopy serological testing (for tissue transglutaminase antibodies, anti-tTG) and assessment of symptoms to identify patients with coeliac disease:

Hopper AD, Cross SS, Hurlstone DP et al (2007)
Pre-endoscopy serological testing for coeliac disease: evaluation of a clinical decision tool
Br Med J , online first, doi: 10.1136/bmj.39133.668681.BE (published 23 March 2007)

2000 patients were recruited, of whom 739 were categorised into the high risk group and 1261 into the low risk group according to their referral indications. In total, 77 patients were newly diagnosed with coeliac disease. The prevalence of coeliac disease in all patients attending for gastroscopy was 3.9% and in the high risk group it was 9.6%. The prevalence of tissue transglutaminase antibody negative coeliac disease was 0.4% (7 of 2000 patients). All cases of antibody negative coeliac disease occurred in the high risk group. Only one of these seven patients had selective IgA deficiency. Antibody negative coeliac disease accounted for 9.1% (7/77) of cases within this cohort.

	Anti-tTG alone	Combining biopsy of the high risk group and pos anti-tTG
Sensitivity	90.9%	100%
Specificity	90.9%	60.8%
Positive predictive value	28.6%	9.3%
Negative predictive value	99.6%	100%

Thus, the strategy of pre-endoscopy serological testing for coeliac disease combined with biopsy of high risk cases had a sensitivity of 100% in this cohort of patients and no cases of coeliac disease were missed. By using this decision tool instead of routine duodenal biopsy, 58.5% of patients would have avoided a duodenal biopsy yet the same number of cases of coeliac disease would have been detected.
These data support the need for duodenal biopsy in high risk patients even if they are antibody negative.

Unfortunately, the authors do not state which anti-tTG test was used. The sensitivity and particularly the specificity of this assay are surprisingly low and result in a very low PPV. All studies with Celikey showed a much higher specificity for coeliac disease (e.g. Bürgin Wolff et al, Scand J Gastroenterol 2002, 37:685-691: sensitivity 96% and specificity 99%). However, even though a relatively low performing assay was used, the algorithm proposed by the authors still avoids many unnecessary biopsies. Using a more specific assay would reduce the number even further.