

Hot topics in Coeliac Disease – International Coeliac Disease Symposium 2009

Dr Evan Newnham and Dr Sue Shepherd* report on the 13th International Coeliac Disease Symposium held in Amsterdam, The Netherlands.

Earlier this year, the 13th International Coeliac Disease Symposium (ICDS) was held in Amsterdam, The Netherlands. This conference brought together world leaders in research into coeliac disease and was attended by more than 1,000 delegates from around the world. While much is known about coeliac disease, research continues to be driven by a need for improved diagnostic techniques, better monitoring and refinement of the gluten free diet.

EPIDEMIOLOGY

In parallel with other autoimmune diseases, the incidence of coeliac disease appears to be increasing. A study presented from the USA noted a 4-fold increase in incidence over the last 30 years and this has been replicated by a recent publication [1]. This increased incidence is not explained by an increase in the awareness of coeliac disease by patients or improvement in recognition and diagnosis by medical practitioners. There are many possible explanations for this increased incidence, including trends in breast-feeding, agricultural practises, gut infections and, potentially, improved hygiene.

The adoption of widespread screening for coeliac disease remains controversial and at this stage has several limitations. However, studies conducted in countries where some screening is taking place, do provide fascinating insights into the natural history of coeliac disease and into the people it affects. A key question in adopting screening for any disease

is whether earlier diagnosis leads to an improvement in long term health. In several abstracts presented from these countries (Finland and Sweden), the quality of life before diagnosis was reduced in those with coeliac disease compared to the rest of the population, and improved after commencement of the gluten free diet. In addition, it appeared some symptoms were only appreciated following improvement on commencing the gluten free diet. These findings have important implications for the increasing proportion of people being found to have coeliac disease and who consider themselves healthy, with minimal or no symptoms.

In addition to these observations, there is mounting evidence that even those people with comparatively mild findings on sampling of the small bowel at endoscopy (or gastroscopy) are just as at risk of the complications of coeliac disease. In an expansion of a study already published in a major journal [2] further details were presented showing that patients with mild findings on small bowel biopsy have a reduced quality of life and have an equally high incidence of osteoporosis as compared with more 'severe' coeliac disease.

IMPROVED DIAGNOSIS

A significant portion of the conference was devoted to the newer diagnostic techniques available for coeliac disease. For the last few decades, antibody testing has formed a crucial component of the diagnostic process in coeliac disease. Newer antibody tests such as antibodies to deamidated gliadin peptides (DGP's) have revealed promising results and improved accuracy. However, as highlighted by several speakers, the diagnosis of coeliac disease still requires a confirmatory biopsy from the small bowel obtained at gastroscopy.

In an expansion of the established role for endoscopy, recent findings [3] were backed up by three separate groups at ICDS finding a portion of people with coeliac disease confined to the very first part of the small bowel. Traditionally, this is an area

of the small bowel that has not been routinely sampled in diagnosing coeliac disease, potentially leading to missed diagnosis. These results have already led to a change in practise in many countries (including Australia) in order not to miss coeliac disease.

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GENES IN COELIAC DISEASE

The role of genetic testing in coeliac disease has expanded significantly in recent years. The need for gene testing (or 'HLA studies') in more difficult cases of coeliac disease is well established and has become a very useful test of exclusion. Many practitioners now consider HLA studies a routine test in the diagnostic process. Presentations during this conference concentrated on recent advances into the human genome in studies termed Genome Wide Association Studies (GWAS). In conducting these GWAS, scientists compare the genetic makeup of groups of people with coeliac disease to people without. These studies are providing some further insights into the established genetic susceptibility to coeliac disease and have identified new areas of the human genome (and particular 'non-HLA' genes) which may contribute to its development. Unfortunately these studies have not provided all the answers and there is much to be learned regarding the reasons for the development of coeliac disease at different ages and in different populations.

CANCER AND COELIAC DISEASE

Whether people with coeliac disease are at risk of developing cancer is an important issue, often at the forefronts of people's mind around

the time of diagnosis. Studies from several decades ago reported a very high incidence of cancer and, in particular, cancers of the small bowel. With improved monitoring and diagnostic tests, it is clear this is far from the truth. Although some data are conflicting, it seems that coeliac disease does increase the chance of developing malignancy, however the risks are much smaller than these earlier reports. In a study presented from Sweden, the incidence of Lymphoma appeared to be a slightly increased in coeliac disease. However, the absolute risk of developing cancer in coeliac disease remains small. It seems logical (although unproven), that adherence to the gluten free diet reduces this risk.

DETECTING GLUTEN IN FOODS

A Spanish research group have developed a method for detecting gluten in foodstuffs, with results being available in less than a minute. This test is based on technology utilising aptamers (artificial entities). The current ELISA method has limitations in that it normally takes 6 – 8 hours to obtain results, and does not detect all types of gluten (e.g. high molecular weight glutenin). The aptamers have

been applied to the detection of gluten (and a broken-down, hydrolysed form of gluten) in raw and processed foodstuffs. As results from this test are available so rapidly (less than a minute), it could also be used by people with coeliac disease to test freshly prepared foods e.g. meals at a restaurant, a take-away pizza and even Mum's cooking, to determine if it is indeed gluten free! The test is likely to be available for commercial use in 2 – 3 years.

ADVANCES IN GLUTEN FREE FOODS AND GRAINS

Although we know gluten is toxic to people with coeliac disease, it is actually only a part of the gluten, specific peptides that induce an immune response. A research group in the Netherlands, have screened wheat varieties (tetraploid and hexaploid) to identify low coeliac-disease-toxic varieties. A range of tetraploid varieties have been identified, and may be promising for the development of safer gluten foods. The same group have also found that by removing a specific genetic sequence in varieties of wheat has not only resulted in lower toxicity, but importantly, when non-toxic proteins were added to this wheat,

the technological qualities of regular wheat remained. This is important as the modified wheat can potentially still perform well in e.g. baking, to ensure high quality baked products.

Dr Sue Shepherd also presented findings from her PhD research at the Symposium. She presented information relating to body composition in newly diagnosed coeliac disease, and the changes observed over the first twelve months on a gluten free diet. A comprehensive article describing these findings will be presented in a future edition of The Australian Coeliac.

1. Alberto, R.T., et al., *Increased Prevalence and Mortality in Undiagnosed Celiac Disease.* Gastroenterology, 2009. 137(1): p. 88-93.
2. Kurppa, K., et al., *Diagnosing mild enteropathy celiac disease: a randomized, controlled clinical study.* Gastroenterology, 2009. 136(3): p. 816-23.
3. Hopper, A.D., S.S. Cross, and D.S. Sanders, *Patchy villous atrophy in adult patients with suspected gluten-sensitive enteropathy: is a multiple duodenal biopsy strategy appropriate?* Endoscopy, 2008. 40(3): p. 219-24.

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