

WHAT TO DO ABOUT OATS?

Oats are controversial. In Wilhelm Dicke's original studies showing that gluten from wheat, rye and barley is toxic coeliac disease, he also found that children with coeliac disease relapsed when fed oats (1,2). Since that time, the argument has shifted back to blaming wheat, rye or barley gluten contaminants for the toxicity of oats. In Australia and New Zealand, commercial oats are generally regarded as toxic in coeliac disease because of gluten contamination.

In Europe, 'gluten free' oats are available and are used as part of the gluten free diet. A small industry has evolved to cater for the gluten free oats market, and oats provide an interesting addition to the gluten free diet, especially for those with diabetes because of the favourable glycaemic index (GI) of oats compared with most other gluten free cereals and grains.

Two influential studies, both published in the New England Journal of Medicine, one in 1995 (3) and the other 1997 (4), showed that addition of oats to a gluten free diet did not slow recovery or cause relapse of coeliac disease or dermatitis herpetiformis (DH). A follow-up of individuals enrolled in the former study found no harmful effects of oats when included in the gluten free diet for up to five years (5).

More recently, inclusion of oats in the gluten free diet was again found to be non-toxic but a quality of life assessment revealed oats were associated with more abdominal symptoms, similar to those in irritable bowel syndrome (6). The 'dose' of oats in each of these studies was up to 70g/day.

Although important, the main criticism of these studies is that they may have missed the 'rare' individuals who do react to oats because they may have been unwilling to volunteer for these studies.

In fact, 11 from 102 subjects withdrew from the largest study (3) possibly because they had adverse reactions. Only ten subjects were included in the DH study. Hence, these studies did not exclude the possibility of uncommon reactions to oats in individuals with coeliac disease.

The oats debate was re-ignited by a study published in 2003 in which a series of 19 individuals with coeliac disease were challenged with 50 g of oats daily for 12 weeks. Small intestinal biopsies performed before and after the oats challenge identified one person with subtotal villous atrophy that evolved with oats exposure and resolved after oats were withdrawn. In five others, there were subtle signs of intestinal damage following oats exposure (7).

Around the same time, a Dutch group published the finding that oats contain protein sequences similar to those in gluten that stimulate the immune response to wheat gluten (T-cell epitopes) (8).

In October 2004, it was reported that T-cells isolated from the intestinal biopsies of the individual who developed subtotal villous atrophy when eating oats, reacted to both wheat gluten and oats proteins sequences (9). Hence, in principle, there may be people with coeliac disease with intestinal immune reactions that cannot distinguish between wheat gluten and similar oats proteins.

We have recently, found that 1/5 individuals with coeliac disease eating oats have T-cells in their blood that react to a series of oats protein sequences including the one identified in earlier studies (10).

Toxicity to oats is present in a minority of people with coeliac disease. Identifying people who genuinely 'react' to oats with worsening damage to the small intestine (i.e. a 'coeliac' reaction) as opposed to irritable bowel symptoms without the inconvenience of a gastroscopy and biopsy, is a major challenge. Antibody-based blood tests are untested and may well be unreliable markers of intestinal damage when oats are the injurious grain.

In Australia and New Zealand oats will not be recommended as part of the gluten free diet until there is a reliable supply free from contamination by gluten from other grains. Some local manufacturers are soon to launch oat-based foods that are contaminate-free, and this should be a welcome arrival for the majority of people with coeliac disease, especially those with diabetes.

Ignoring the issues of gluten contamination, generalisations about the safety of oats (gluten free or not) in coeliac disease should be tempered by the likelihood that occasional people do react to oats.

Perhaps, the message for doctors and dietitians is that vigilance is needed when oats are included in a gluten free diet and should be withdrawn if intestinal symptoms worsen or nutritional markers (e.g. iron levels) deteriorate.

If there is a compelling reason to consume oats, it may be that a systematic challenge with oats and endoscopic biopsy before and during is the only definitive test for oats sensitivity.

DR BOB ANDERSON

Dr Bob Anderson, consultant gastroenterologist at The Royal Melbourne Hospital and founder of the ANZCRF provided the medical information for this CD.

Dr Anderson is the Chief Scientific Officer and Chief Medical Officer of Nexpep and Nexgrain and is a substantial shareholder in both companies.

He is the head of the coeliac disease laboratory and the Ian Mackay Fellow, Autoimmunity and Transplantation Division at the Walter and Eliza Hall Institute (WEHI) in Melbourne, Australia.

Dr Anderson is also an Adjunct Associate Professor, University of Maryland, Baltimore, USA.

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