



Allergy Asthma Information Association

House of Commons Standing Committee on Health
Labelling of Genetically Modified Foods, March 14, 2002

Food Allergy: Incidence and Challenges

Allergic disease affects up to thirty per cent of Canadians and encompasses allergic rhinitis (hay fever), asthma, and allergic sensitivities to many substances, including foods, drugs, insect stings, latex and a variety of air borne particles. Severity can vary from the occasional nuisance of mild hay fever to life threatening allergic reactions. Food allergy can be at the severe end of the spectrum and has become a growing public health issue. There is some indication that the incidence may be increasing; certainly the number of children who are diagnosed with food allergy has risen in recent years and this has led to increased awareness and concern.

A true food allergy is one that involves an IgE mediated immune system response to an allergen, usually a protein. An allergy differs from intolerance and other adverse reactions. It is estimated that “true” food allergies can be found in up to 8% of children and 1-2% of adults.¹ The percentage declines with age because some food allergies resolve over time. Others, such as allergies to peanut, tree nuts, fish and shellfish, tend to be persistent. Food allergy can lead to anaphylaxis in any age group. Anaphylaxis is a potentially deadly reaction with symptoms that can include difficult respiration, a severe drop in blood pressure and loss of consciousness. It is thought that 1-2% of the population are at risk of anaphylaxis to foods, medications, and insect stings.²

The most common food allergens are in foods such as milk, egg, peanut, shellfish, tree nuts, soy, fish, wheat and sesame seeds.³ All of these foods can cause severe reactions. However, there are a large number of other foods to which susceptible individuals are at risk of anaphylactic reactions. In essence, any food protein has the potential to be an allergen for someone.

It is important to understand that very small amounts of a food allergen can trigger an anaphylactic reaction. Traces of peanut have caused death and the amount of milk, egg or shellfish required for a fatal reaction is not large. Coupled with the reality that there is no preventative medication or treatment for food allergy, this means that avoidance is the prime strategy used to prevent reactions.

Food allergic Canadians must be very careful during every meal, every day. They rely on ingredient labelling at point of sale to provide essential and potentially life-saving information, reading and re-reading the label each and every time a food is purchased. Given the complexity of the modern food supply and the nuances of our labelling laws, it is quite a challenge. Food allergic consumers, along with their families and caregivers,

¹ Elements of Precaution: “Recommendations for the Regulation of Food Biotechnology in Canada”, An Expert Panel Report on the Future of Food Biotechnology prepared by The Royal Society of Canada, January 2001, ISBN 0-920064-71-x

² The Canadian Allergy, Asthma and Immunology Foundation

³ Zarkadas M, Scott FW, Salminen J, Ham Pong A. Common allergenic foods and their labelling in Canada. *Can J Allergy Clin Immunol* 1999;4:118-141.

become “lay experts” about issues such as cross-contamination, labelling regulations, legally undeclared allergens, and manufacturing practices in Canada and elsewhere.

The Allergy Asthma Information Association (AAIA) was founded more than thirty years ago at a time when ingredient labelling was non-existent. The AAIA lobbied hard to obtain ingredient labelling and continues to work with the food industry, professional allergists, government and other groups to improve labelling and manufacturing practices in order to increase the level of protection for this vulnerable population.

Another group with similar needs for accurate ingredient labelling are those individuals with celiac disease, who are estimated at 1 in 250 Canadians. To reduce their risk of developing osteoporosis, a variety of cancers, and other serious complications, they require a strict gluten-free diet for life. This can only be achieved with the accurate and complete labelling of gluten sources in foods.

Concerns about Genetically Engineered Foods

We know that it is possible to transfer allergenic proteins from one food to another by means of genetic engineering. This could benefit the allergic population at some point in the future, if, for example, a peanut or nut could be modified to reduce or eliminate the allergenic proteins. However, it is also possible that allergenic proteins could be transferred from one food into another and this would have a very negative impact on the allergic population and gives rise to some very real and immediate concerns.

At the present time, genetic engineering of food can proceed without controls. When we ask questions about allergy the responses are often statements to the effect that “no one plans to transfer allergens”, “if something is found to be allergenic, it will be labelled”, or “we will screen out allergens in the early stages”. The AAIA does not find these simplistic responses completely reassuring, since there are no legal assurances, no regulations, and no long-term review of GM products. There is also limited information available to scientists about the allergenicity of food proteins, so it is misleading to imply that allergens can always be identified. While it is generally true that the food industry would not want to harm its allergic customers, we fear that not everyone in the field is knowledgeable about food allergy.

Testing for known allergens is limited since allergenic proteins have been specifically identified for only a few foods. Moreover, there is no test available at present that will accurately predict the allergenic potential of proteins from food or non-food sources that are not previously identified as being allergenic in human subjects.⁴ Therefore, great caution needs to be exercised with respect to genetic modification across species or across and within food families.

⁴ Elements of Precaution: “Recommendations for the Regulation of Food Biotechnology in Canada”, An Expert Panel Report on the Future of Food Biotechnology prepared by The Royal Society of Canada, January 2001, Page 60

If proteins were to be transferred within varieties of the same food, i.e., from one variety of potato to another variety of potato, there would be little concern in the allergic population so long as the food does not become more allergenic in the process. (A person allergic to such a food would already be avoiding all varieties of potato.) However, there could be a major issue if a fish protein were to be inserted into a soybean or a nut protein inserted into another food. The AAIA believes that proteins should not be transferred across species, food families or within food families unless it can be proven that the protein is unlikely to be allergenic. The onus for proof should be on the food producer.

There are additional concerns about new proteins that could be produced in the process of genetic engineering, since the allergenic potential of such proteins would be impossible to predict in advance. Allergic sensitization can develop after a short or long-term period of exposure, so unforeseen problems could arise in the future, and these would need to be tracked to assess the long-term impact.

There is a lot of detective work involved in the diagnosis of allergy and it is difficult to envisage the confusion that could arise if an allergenic protein were to be used in a variety of foods, especially if its presence was not known to patients and allergists. If such a protein was used in a wide variety of foods it might also raise the incidence of allergy, especially if the foods were frequently used in the diets of children, who could become sensitized at an earlier age.

Labelling of GM Foods

The AAIA is a strong proponent of mandatory labelling of all foods, including imports, and we would prefer to have mandatory labelling of GM foods and ingredients. We are aware that this is a complex task, but that it can be done. We also believe that the labelling should be specific, i.e., GM corn, GM soy, etc. so that the consumer can choose or avoid a product based on the information found on the label.

Currently there is a voluntary standard for genetically engineered food labelling being developed in Canada by the Canadian General Standards Board. This is being developed for “consumer information” purposes. The AAIA participated in this committee but we are very much aware that it would not meet the needs of the allergic population, should transferred genes prove to be allergenic. There will likely be a “tolerance” under the proposed standard, meaning that a certain percentage of an ingredient could be genetically engineered and not listed as such on the ingredient list, which could be very dangerous with respect to allergens.

Mandatory labelling of GM foods would not totally protect the allergic population, even if the tolerance were very low. Labelling regulations do not capture every single component of every ingredient in every food. Small amounts of “second generation” ingredients can legally be unlabelled. For example milk protein is used in a seasoning mixture which is then used in soup, the soup label may simply list “seasoning”. New legislation is being drafted to require more complete labelling of allergenic components in foods, which is very good. However, even this legislation will not ensure

that third generation allergenic components will be declared on the label. Nor will it prevent cross contamination problems during manufacture of foods. Therefore, while we are in favor of mandatory labelling to the fullest extent possible, we believe that measures to prevent the transfer of allergens and to prevent the development of new allergens are even more important.

Recommendations

Allergy should be a prime consideration when food is being genetically modified and work in this field should proceed with great caution since it might be very difficult to undo GM errors. The wisest and most prudent strategy would be to focus on preventing the transfer of known allergens and on preventing the development of new allergens. We believe that the government has a responsibility to protect the interests of its allergic population by establishing legal controls, guidelines and a review process. The AAIA offers the following recommendations:

1. Legislate against the transfer of known allergens.
2. Improve the methodology for assessing the allergenicity of proteins.
3. Establish a central registry or resource for information on allergenicity of proteins.
4. Provide training in allergy to scientists working in the field of genetic engineering.
5. Proceed with caution with respect to gene transfer within and across food families, and across species, by developing strict controls.
6. Establish mandatory and specific labelling for genetically modified foods, e.g., GM soy, GM corns, etc.
7. Ensure that there is a follow up process for the after-market surveillance and review of GM foods.
8. Monitor imported food very closely.

Respectively submitted,

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