



Allergies

By Dr. Brian P. Jakes, Jr.

Insulin and other Allergic Reactions Does Diabetes make a Difference?

There are various types of allergic reactions that we will examine, some of which can have a very profound effect on blood glucose control. The one that can be considered to be part of the normal pathogenesis of diabetes, although not common due to the uses of human DNA insulin, is an allergy to injected insulin.¹ These occurrences have been declining as beef and pork insulins are being replaced.²⁻³ Nevertheless this can be a serious problem to those that develop this allergy. Difficulties in blood sugar control and increasing insulin dosages, which progress far more rapidly than the normal pathology of the disease, may be the first symptoms. This may also be accompanied by local injection site irritation with the development of wheals.⁴ Even with some or all of these symptoms present, this condition may still be dismissed by doctors as an expected part of the disease process. While all these suspicions can easily be verified by blood testing for an increase in anti-insulin antibodies, it may take several detours before you arrive at that point. Some of the clues that will lead to this conclusion might be revealed in more common blood testing. A typical complete blood count (CBC) would likely show a definite increase in eosinophil cells, which could denote an allergic response. This result would probably be followed by another blood test for immunoglobulin E (IgE). There are five basic classes of immunoglobulins (IgA, IgD, IgE, IgG and IgM), and a number of different subclasses. They function as specific systemic antibodies in the blood and other body fluids. An elevated IgE value would be a very significant, but not necessarily an inclusive indication of an allergic condition even though it can coincide with an insulin allergy.⁵⁻⁶ Nevertheless, a high value would prompt more investigation, which could lead to allergic testing of a variety of possible allergens. This is when a test for anti-insulin antibodies or specific IgE anti-insulin antibodies should not be overlooked.⁷ There is a common elevation in these values from the uses of injected insulin, but this count will usually be much higher when experiencing this allergy.⁸⁻⁹ Also, it appears that when anti-insulin antibodies are present to the type of insulin currently being used, they may also be present to other insulins that may have never been used.¹⁰ So, there may be little value in trying to switch to anything other than human insulin, which is the least immuno reactant. Please note that there is a distinct difference between anti-insulin antibodies and auto anti-insulin antibodies. While anti-insulin antibodies are an allergic reaction from injected insulin, auto anti-insulin antibodies are generated from a spontaneous autoimmune response without the interference of exogenous insulin.¹¹ This autoimmune reaction is similar in nature to the one that destroys the beta cells in Type I diabetes and it will be discussed in the following chapter.

Now the question is what to do when you have been diagnosed with an anti-insulin allergy? The conventional treatment approach is usually steroids, antihistamines or desensitization therapy. But before you consider any of these therapies it is very important that you conclude what you have is in fact an insulin allergy and not some other related allergy masquerading as an insulin allergy.¹² Some of the more likely allergens can be the retarding agents used to slow the absorption of insulin. The protamine used in the NPH preparations and the zinc used in the Lente and Ultralente insulins might be at fault, but it appears that a reaction to the protamine is much more common.¹³⁻¹⁴ The ratio of those that react negatively with NPH insulin as compared with Lente insulins can be as high as 5 to 1.¹⁵ The other possible reactants include protein impurities or additives in the insulin itself or contaminants in some syringes.¹⁶ There have been reports of syringes and pen injectors, which use silicone in their manufacture, causing injection site irritation and local reactions, but again these situations are much less probable of being a cause as compared to NPH insulin. If it is believed that one of the retarding agents is to blame you can switch temporarily to the other or even switch the type of insulin.¹⁷ There are two types of synthetic human insulins, Humulin and Novolin. Humulin is based on genetically altered bacteria, while Novolin is produced through a similar process using modified brewers yeast. Although considered identical, there are very subtle differences, which might not provoke an immune response. In fact, the faster acting Humalog (Lispro) insulin shows to be less immuno reactant than Regular insulin, even though they are virtually identical.¹⁸ If for any reason you

try to replace Regular insulin with Humalog keep in mind that about 30% more Humalog is needed to achieve comparable results of Regular insulin. So, it appears that it may not require dramatic differences in the structure of insulin to deceive the immune system. Sometimes a decrease in the insulin dose alone is enough to correct this condition. Improvement in overall control is not uncommon in some Type II diabetes patients, which reduce large insulin doses. There are probably a number of Type I diabetes patients that would fall into this same category but, their reduction needs to be monitored much more closely. A 5% reduction of the total daily insulin dose would be the best place to begin. I have seen escalating insulin doses create glucose control problems that could only be solved by slowly reducing the insulin dose itself. Even though this method of treatment sounds paradoxical, it often quite effective in certain cases. I would suggest you use the different insulin(s) or doses for no less than a week before making a decision on its effect, unless reasonable glucose control can not be achieved. Other non-invasive treatments that might be beneficial in this situation have been aspirin and vitamin C therapy. The uses of aspirin has been quite successful in its ability to desensitize those with an insulin allergy. One of the studies used 1300 mg of enteric coated aspirin three times a day for a week, but found it necessary to continued the dose for the protective effect.¹⁹ While aspirin is generally consider safe for adults without gastric ulcers, there are still some safety concerns for its uses in children due to the development of Ryes syndrome. Also, due to the very high dose involved, this type of aspirin therapy should be approached very cautiously. Vitamin C has been emerging as the one vitamin that has been proven to be beneficial in virtually every ailment. It appears that large doses of vitamin C can be helpful in the treatment of both allergies and autoimmune conditions.²⁰ It is not exactly clear how vitamin C works in these situations but, it may be through some type antihistamine or anti-inflammatory action. The doses would probably be in the order of ten to twenty thousand milligrams a day of vitamin C for an indefinite period. If these treatments fail to resolve this problem it may require the temporary uses of an antihistamine, corticosteroid or desensitization therapy. The current process of insulin desensitization consists of continuous subcutaneous insulin infusion (CSII).^{21 22} This is accomplished by slowly increasing very small doses of insulin through injection or infusion on an hourly basis. This treatment is usually very effective in treating an insulin allergy and rarely is there ever need to repeat it, except in extreme cases.

There is a completely different aspect to allergies and how they pertain to diabetes patients than what just has been discussed. I believe that this situation is far more common and effects a large number of diabetes patients possibly without them even knowing it. What I am referring to are environmental allergies that may not exhibit any type of external symptoms normally associated with allergies.²³ The only visible indications that occur are elevated blood sugar values, which may be either sporadic or continuous. These reactions are more than likely caused by food but, they can just as easily be the result of airborne allergens such as molds or pollens. Sometimes something as common as a mosquito bite or insect sting can be to blame, especially in a child.²⁴ Actually, there are a wide variety of potential allergens that we all come in contact with on a daily basis. The difference is however, how each of our body's own immune system responds to them. An allergic reaction can invoke local and or systemic physiological response to varying severity. These are inflammatory reactions, which can effect skin, breathing, blood pressure, blood sugar and in severe cases cause anaphylactic shock.²⁵ In a non-diabetes patient with only minimal reactivity to a substance, an allergic reaction can go completely unnoticed. This is because an uncompromised regulatory system can compensate for these minor fluctuations. While in a diabetic, the inability to facilitate these corrective actions due to a greater load on the endocrine system may only result in hyperglycemia. These increased blood sugar values are often dismissed as part of the normal difficulties of controlling a diabetic, but there is always an explanation for hyperglycemia if you chose to find it. But if you are experiencing continual blood sugar control problems and have ruled the amount of food, insulin or oral hypoglycemics dose and hypoglycemic rebounds not to be the problem, you must consider what else could be involved. Normal hormonal releases can account for fair percentage of unexplained glucose spikes in Type I diabetes patients and possibly some Type II diabetes patients. But above the normal basal amounts of hormonal excretions, which should already be adjusted for in your daily treatment, most hormonal spikes are transient. They can appear at any time and usually last several days to a week and in some cases slightly longer. So while hormone releases can be an annoying problem they should not be a chronic one, except during puberty. When investigating a problem like this the next logical place to examine are the things

that come in constant exposure with the person. This leads us back to food and environment. A food induced allergic reaction could possibly raise blood sugar by elevating IgE and also by increasing histamine levels.²⁶ These reactions may translate into high postprandial blood sugar reading or they can take place many hours from the time of consumption making it difficult to determine the cause. A rotation or elimination diet might be helpful in determining the exact culprit. Keep in mind while I use the term food, it can be an additive in a particular type of food that is actually causing the problem. There are literally thousands of different preservatives, colorings, stabilizers, flavorings and antioxidants used in practically every kind of food, any of which has the potential of causing a reaction.²⁷ Dyes and colorants have been notorious for causing allergic reactions. They have also been implicated in the development of asthma and attention deficit hyperactive disorder (ADHD).^{28 29} Colorings like carmine (red E120), tartrazine (yellow No. 5), annatto (orange-yellow) and some different shades of blue have been proven to provoke allergic and asthmatic attacks.^{30 31 32 33} Also, some of these dyes are actually derived from natural sources, so just because it is natural does not make it hypoallergenic. Be aware that these dyes and flavorings have also found their way into both prescription and over the counter drugs.³⁴ Adverse reactions have also been reported from the ingestion of preservatives like butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), nitrates, and sulfites, and from benzoates and monosodium glutamate (MSG) additives.^{35 36}

The reason why some diabetes patients might be more prone to these allergies than others may be due to a genetic predisposal. There may be a direct link between food and pollen allergies and Type I diabetes. The first of these studies suggest a connection between food allergies and autoimmune reactions like those that are involved in the development of Type I diabetes.³⁷ It points to a hypersensitivity to certain proteins in wheat, rye, barley and soy that may act as triggering agents. Another study shows a possible relationship between pollen and food allergies and specific human leukocyte antigens (HLA).³⁸ The significance here is that some of the HLA's, common in these allergies, appear to be the same ones that might be linked to the development of Type I diabetes. Other ways allergens can pose a problem is when they enter through the nasal or respiratory tract. Usually this will invoke a defensive response with the secretion of mucus. The constant filling of the nasal and sinus cavities with mucus combined with elevated blood sugars of diabetes can create an ideal environment for bacterial or fungal infections.^{39 40} Nasal allergy reactions can also alter the function of the eustachian tubes, which can increase the incidents of ear infections.⁴¹ If these types of infections reoccur frequently they can development into a more chronic format. Chronic infections such as these may not manifest any physical symptoms, nor will their effects necessarily appear on routine blood tests. It may require more in depth blood testing or a CT scan to locate the cause. Also, continually using antibiotics to combat these infections can create the condition of antibiotic resistance. As an alternative to antibiotics and if detected in time, immediate uses of the herb echinacea might be able to curtail the infection.^{42 43} Echinacea is an extremely safe and effective immune system stimulant, which demonstrates both antibacterial and antiviral properties.⁴⁴ This makes echinacea work equally as well in treating the cold and flu viruses.⁴⁵ Regardless of what pathologies were involved in development of allergies the condition still must be addressed. Avoidance is the best approach when possible, but it is not always practical in every situation. Conventional treatments are the typical uses of drugs including antihistamines, steroids, and of course the allergy shot. There are a wide variety of alternative treatments available for allergies. When food allergies are under investigation one of the first places to start is the digestion system. In some cases decreased production of stomach acid (HCL) or digestive enzymes can cause incomplete digestion of food that might get released into the bloodstream resulting in a reaction.⁴⁶ If this condition is diagnosed an oral digestive supplement should be helpful. The uses of probiotics, such as various types of lactobacillus, has been successful in treating imbalances in intestinal flora that could lead to allergic reactions.⁴⁷ There are a host of herbs used like feverfew, triphala and goldenseal, just to name a few, to treat allergies but, it is better to identify the particular allergen first to make a more specific herb selection to achieve the desired effect.⁴⁸ Other treatments like high dose vitamin C and pollen immunotherapy have proven beneficial in reducing allergic reactions.^{49 50} One of the most remarkable therapies I have seen in the treatment of allergies is the Nambudripad Allergy Elimination Technique or NAET. Dr. Devi Nambudripad created a unique treatment that is able to completely eliminate allergies non-invasively. NAET utilizes several other disciplines; kinesiology, chiropractic, acupuncture and acupressure. The treatment begins with muscle testing with specific allergens, then through in

uses of primarily acupuncture techniques at certain acupuncture points each allergen is addressed and its effect nullified. The patient has to remain free from exposure to this allergen for 24 hours for this treatment to be permanent. The only problem with this therapy is that it can only remove one allergen at a time. There are a number of specially trained chiropractors across the country which offer this treatment.

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