

The war against allergies

Michaela Lindgren

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Department of Biology Education, Uppsala University.

Allergies are a major problem in the world and many people know exactly the fear when you get an allergic reaction. However, now there is a possible solution that can change the fight against allergies.

The game is on

There are a lot of scientists that dedicates their life to find an ultimate solution against allergies so that a tolerance can be created. But first one must understand how an allergy works within the body which creates these adverse reactions. So, the most reasonable decision is to start looking in to the body's defense; the immune system. The immune system in humans produces specialized cells called B-cells and T-cells that protect us from unknown substances (e.g. allergens) that can cause allergic reactions. The specialized cells defend us by producing antibodies that is attached to so called mast cells. When an allergen reaches these antibodies they signal the mast cells start to release a various form of signal substances which give rise to an allergic reaction. The reaction itself affect mayor parts of the body, and can create rashes as well as swell up, especially in the respiratory system. The body is mostly allergic to substances that a person is not used to, but sometimes the body can produce these antibodies for a substance that the person have encounter before, like cow milk. Being allergic to cow milk is very serious for the person itself and it can be a daily obstacle trying to avoid the allergen. Allergies vary in humans, both when it comes to what biological factor that creates the reaction, and the type of response that appears in the body. Some people that suffer from cow milk protein allergy gets more of a stomach ache when they drink milk, while others get urticarial (a sort of eczema) when they just get milk on their skin. But sometimes when an allergic reaction occurs, it may escalate to an anaphylactic shock, which is a life threatening state since organs starts to malfunctioning and shut downs due to low blood pressure since the histamine dilates the blood vessels. Therefore it is of great importance to find a solution to allergies.

Solution to allergies

Several tests have been successful in making people tolerant to allergies, especially food allergies, since they are quite troublesome in the society. There are difficulties of abstaining from food that can contain the allergen, since there is always a risk of a contamination in food. Thus a person with a food allergy will always have an imminent risk of an allergic reaction every day.

Different ways to be allergic

There are different biological ways that give rise to a milk protein allergy, and one need to understand how a specific person's allergy operates to determine which treatment you should provide. Some allergies depend on a specific type of antibody, like the immunoglobulin E (IgE), to signal the rest of the body to send out its defense. Other allergies can react in a different way and are not influenced by the IgE, and it can also be a combination of these two. Different studies have shown that children with an allergy that does not include IgE outgrow

their allergy in greater occurrence than those who have an allergy that occurs due to IgE. There is also a factor that the more IgE you have in your bloodstream for that specific allergen, the likelihood of outgrowing your milk protein allergy decreases. Therefore it is beneficial to find a solution that takes away your allergy for good.

Food challenge tests- a way of treatment

Food challenge tests are about patients who gets exposed to the allergen deliberately with the goal to increase the tolerance threshold are performed in a higher frequency in order to gain tolerance. They are not without risks, therefore scientists try to make them safer and with a greater success rate. Today the food challenge tests works like this; you subjecting allergic people to the thing he/she is allergic to. It start with at a small dose and by time the dose increases until the level for daily consumption is reached. At this point the patient should be symptom free. This is because the test is during a long period of time and they should have managed to become tolerant, or at least partially tolerant. If the patient reaches this level they should be able to continue with the daily intake and therefore not being classified as allergic anymore. However, today it is not clear if these persons become truly tolerant or if it just is a partially tolerance that will withdraw in time. These tests are risky since you are being exposed to the allergen that can make you very sick. This is why these are performed at the hospital during the first period of time and then the doctors keep an eye on you during the rest of the test. These methods may be a beginning to defeating allergies.

A possible vaccine for the future

The most essential thing to think about when you're at war is that you should never bet on just one card. So they are also working on creating a vaccine against allergies. It has been discovered that a person who has an allergy have less or malfunctioning of a specific type of T-cells, T_R-cells, that can cause an allergy. These T_R-cells regulate the T-cells who produces the antibodies. So they are, as I'm typing this, working to make a form of vaccine against this so that an allergic person can get functioning T_R-cells and hopefully get rid of his/hers allergy. This combined with a genetic map of which individuals that are in the risk zone of becoming allergic can end the war against allergies.

Do you want to know more about how to reverse allergies?

Lindgren, M.A.M. 2015. Allergiers egenskaper och en förändring i IgE-medierad mjölkproteinallergi. Självständigt arbete i biologi. Uppsala Universitet.