Disorders of The Immune Response

Institutional Affiliation

Date

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Type 1 hypersensitive response is a reaction displayed by the body of a person after it is exposed to some specific type of antigen referred to an allergen (Biedermann et al., 2000). Type I hypersensitive response can also be defined to as an allergic reaction that happens to somebody when is exposed things which the body does not comply with them. This reaction may result when a person is exposed to strong scents like those of perfumes, ingestion of some foods or injection. Some people are allergic to some drugs; therefore, if the drug is injected into that person's body, the body starts to react. Ahmed who is a phlebotomist in a local hospital displayed a lot of type 1 hypersensitivity allergic signs and symptoms. Some of these signs and symptoms displayed by Ahmed include nasal congestion, wheezing and watery. These kinds of signs and symptoms are usually displayed by a person when he or she inhales substances which initiate the body system to release some antibodies because of those inhaled substances. In other words, the inhaled scents which provoke the body to produce allergic reactions usually contain antigens which make the body to produce antibodies to fight these foreign antigens.

Therefore, the different kinds of scents which came out of the hospital are the ones who made Ahmed start experiencing those allergic signs and symptoms. Nasal congestion, which is one of the symptoms displayed by Ahmed, refers to blockage of the nose because of swollen nose linings which results from swollen blood vessels due to the inhaled antigens. This experience is usually very annoying and disturbing to a person. Wheezing which is also a symptom displayed by Ahmed is usually a sound that comes out of a person when is breathing in or out. Wheezing is as a result of narrowing of the breathing airways or inflammation of the respiratory ways. The narrowing may also come as a result of some health complications, therefore, requires diagnosis and treatment. But for Ahmed, the wheezing symptoms were not because of any other disease but because of the allergy he was suffering from. The reason is that, when he went out of the hospital, he did not experience those signs and symptoms which means he had no other health complications.

Latex hypersensitivity is an allergic reaction to proteins present in natural rubber. This allergy usually results when an individual is exposed to natural rubber for a long term (Himly et al., 2003). Ahmed also was suffering from this type of allergy because; when he wore the gloves he developed serious respiratory distress. The respiratory distress resulted when the rubber gloves he wore that contained proteins came into contact with mucous membranes, whereby the mucous membrane absorbed the latex proteins. When those proteins got into the body system of Ahmed, it provoked the body to produce antibodies to fight those proteins because they are viewed as dangers by the body immune. Therefore, the reaction caused respiratory distress to Ahmed. There are other ways in which latex hypersensitivity reactions can be displayed in an individual. Some of these signs and symptoms include skin rashes and blisters that ooze of the skin surface. An individual may also experience severe itching in his body and also irritation. Some of these symptoms may be too much that an individual may require serious medical attention.

The T2H cells, mast cells, and eosinophil usually undergo a series of reactions so that an individual might display the signs and symptoms of type 1 hypersensitivity. The process goes on as follows. When an individual is exposed to allergic substances, which are CD4+TH2 cells, B-cells are stimulated to produce IgE antibodies which are usually specific to an antigen (Kim et al., 2003). During the exposure, the IgE antibodies bind to FCER1 receptors on the surface of mast cells and basophils. Therefore, the mast cells coated with the IgE antibodies are sensitized. When the individual is later exposed to the same allergic substances the IgE cross-links the bound and becomes sensitized, and therefore the hypersensitive signs and symptoms start to be experienced in an individual. From this process, it can be deduced that first exposure of a person to the allergens cannot make a person experience the signs and symptoms because it requires several exposures so that the B-cells might be stimulated to produce the 1gE antibodies. But some individuals are susceptible in such a way that, if they are exposed to allergens for some time, their bodies begin to experiences the allergic reactions. For instance, Ahmed had worked in the hospital for the last seven years without experiencing the allergic reactions. But because of being exposed to those allergens for a long period, the 1gE antibodies were produced to a maximum level to be in a position of causing the type 1 hypersensitive reactions to expose themselves. Those signs include wheezing, watery, nasal congestion and also the distress which he was experiencing while he was breathing.

A person who does not come into direct contact with latex can still develop hypersensitivity responses. The reason is that there are so many materials which are made of latex even if the latex is in tiny quantity. Some of those materials include balloons, condoms, baby bottles, tools, athletic shoes, handbags, underwear and waistbands among many others. There are also a lot of foods most probably the fruits that can cause latex hypersensitivity response in an individual. Some of those fruits include bananas, apples, carrots, chestnuts, kiwi, raw potato, melons, celery papaya and the tomatoes. Therefore, it does not matter for a person with latex allergy to come into direct contact with the latex so that he may develop the allergic responses. The reason is that the person can also develop those responses from the daily things like tools which he or she utilizes on a daily basis. For instance, people with young children have to use the baby bottles when serving the babies with food like the porridge, milk and other different liquid foods. In the process of using this material, the parent may develop those latex hypersensitivity reactions. Also, those people who have already developed latex allergy can still develop hypersensitivity responses by using some fruits. These fruits, when eaten by that individual, they normally stimulate B-cells to produce 1gE antibodies which react in the body. The reactions cause the body to display the allergy's signs and symptoms. Therefore, when Ahmed later gets in contact with some of the fruits that induce latex hypersensitivity responses, he will suffer the same signs and symptoms. People with kind of allergy should be cautious with the things they use because this type of allergy is very fatal.

References

Biedermann, T., Kneilling, M., Mailhammer, R., Maier, K., Sander, C. A., Kollias, G., ... & Röcken, M. (2000). Mast cells control neutrophil recruitment during T cell–mediated delayed-type hypersensitivity reactions through tumor necrosis factor and macrophage inflammatory protein 2. *Journal of Experimental Medicine*, *192*(10), 1441-1452.

Himly, M., Jahn-Schmid, B., Pittertschatscher, K., Bohle, B., Grubmayr, K., Ferreira, F., ... & Ebner, C. (2003). IgE-mediated immediate-type hypersensitivity to the pyrazolone drug propyphenazone. *Journal of allergy and clinical immunology*, *111*(4), 882-888.

Kim, J. W., Lee, J. H., Hwang, B. Y., Mun, S. H., Ko, N. Y., Kim, D. K., ... & Choi, W. S. (2009). Morin inhibits Fyn kinase in mast cells and IgE-mediated type I hypersensitivity response in vivo. *Biochemical pharmacology*, *77*(9), 1506-1512.