

## Spices associated hypersensitivity type 1: A case report.

Rachel Githiomi<sup>1\*</sup>, Kennedy Muna<sup>2</sup>, Naomi Waiganjo<sup>3</sup>

<sup>1</sup>Kenya National Blood Transfusion Service (KNBTS), Mount Kenya University, Nairobi, Kenya

<sup>2</sup>Department of Medical Laboratory Sciences, Faculty of Medical Sciences, Mount Kenya University (MKU), Nairobi, Kenya

<sup>3</sup>Department of Biomedical Sciences and Technology, Faculty of Applied Sciences and Technology, Technical University of Kenya (TUK), Nairobi, Kenya

### Abstract

**Spices are essential components in day to day life and are beneficial in different ways to human health apart from taste enhancer. Few spices have direct or indirect role in boosting immune system due to their medicinal properties. On the other side these may be dangerous to health for few people. Few spices comprise capsaicinoids and alkaloid like compounds. Sometimes immune system recognizes capsaicinoids and alkaloid incorrectly as allergens. Here the spices hypersensitivity starts. Allergic reactions may occur immediately or sometimes few hours later of the exposure. In this case also reactions like; hyperacidity, stomach pains, sweating, nausea, vomiting and diarrhoea happen almost immediately after exposure to the spices.**

**Keywords:** Allergy, Immune system, Autoimmunity, Hypersensitivity, Food allergens.

### Introduction

Spices are scented seeds, fruits, roots, barks, or other plants substances mainly used for seasoning, colouring or preserving food. They can be differentiated from herbs, which are the leaves, flowers, or stems of plants used for flavouring or as a garnish food. Therefore they can be classified into two types' spices and herbs. Examples include; pepper, chilli, ginger, cayenne, cumin and paprika [1-3].

Many spices have many properties such as antimicrobial which is beneficial in food preservations especially in the warm climates. This is also beneficial to persons who use them as nutritional ingredient due to their minerals and micronutrients quantities. They also boost the immune system due to their medicinal property and antioxidant activities. Species are also used in the production of cosmetics or perfumes.

Despite the many health benefits of spices, they can be dangerous in some individuals. This is because some of the compounds (capsaicinoids, alkaloid), in these spices can be incorrectly recognised by the immune systems as food allergen. Once these compounds are marked by the immune system as allergens, it will mount an immunological immune response against them. These Allergic reactions occur immediately or a few hours after exposure to these spice compounds which may result from consuming even a small amount of the species. These immune responses are known as hypersensitivity.

Hypersensitivity refers to any undesirable reactions produced by the normal immune system, including allergies and autoimmunity. Hypersensitivity type 1 is an immediate

immune response against food allergens or pollen. It is mediated by mast cells, basophiles and Ig-E antibodies. If not attended immediately, it can be fatal [1,2].

### Case Report

A 29 years old woman of child bearing age presented at the outpatient clinic with hyperacidity, nausea, sweating, stomach pains and loss of appetite. After the examination, she was confirmed to be suffering from hyperacidity. She was treated with antacids and advised to be return after one month. The symptoms became worse; she could not eat and developed diarrhea. She returned to the clinic for review after which an intravenous medication was administered. She was put under observed for four hours and was discharged. The clinician ordered an x-ray and sound scan to determine if the woman had ulcers. The results showed that there was no ulcer and thus the diagnosis was hyperacidity. The cause of the hyperacidity was yet to be identified.

Having been shown to have normal results, the woman was required to be taking oral antacids to resolve the hyperacidity episodes. The woman noted that these hyperacidity episodes were much worse if she used food that was spiced. She could not have associated this hyperacidity scenario with food because she had not experienced any problems before.

She had to be sure that these hyperacidity episodes were spices related thus she prepared food using red pepper and even before the food was ready, she had started tearing, and feeling nauseated. After consuming some of the food, she experienced heat sensation in the stomach, she could feel

\*Correspondence to: Rachel Githiomi, Kenya National Blood Transfusion Service (KNBTS), Mount Kenya University, Nairobi, Kenya, E-mail: rachelgithiomi@gmail.com

Received: 21-Jun-2022, Manuscript No. AACIR-22-67159; Editor assigned: 23-Jun-2022, PreQC No. AACIR-22-67159(PQ); Reviewed: 07-Jul-2022, QC No. AACIR-22-67159;

Revised: 10-Aug-2022, Manuscript No. AACIR-22-67159(R); Published: 18-Aug-2022, DOI: 10.35841/aacir-5.4.116

acid pouring in her stomach, she started sweating, vomiting and finally there was diarrhea. This occurred within half hour after food consumption. She was treated with antacids which failed to resolve the symptoms which resulted to intravenous medication and long hours of observation. She was discharged after several hours of treatment and observation. She regained her health and was able to continue with her daily routines.

To date, these allergic hypersensitivity episodes always occur once this woman consumes spices *via* food or if she inhales them. They occur immediately after consumption or exposure to the spices. To deal with this spices hypersensitivity related issues, she was advised and made a decision to avoid all types of spices which has worked so far.

## Discussion

This woman suffers from gastrointestinal symptoms each time she consumes any type of spices. This causes her to experience hyperacidity, heat sensation, stomach pains, sweating, nausea, vomiting and diarrhoea. This happens almost immediately after exposure to the spices.

Hypersensitivity type 1 is an immediate immune response against food allergen or pollen. The above case report could be associated to hypersensitivity type 1 [2-4]. This hypersensitivity type 1 immune response is initiated by mast cells and IgE antibodies. There is a high likelihood that any time this woman is exposed to spices, the immune system memory is activated and mounts an immediate immune response against the compounds found in the spices [4-7]. With further investigation, there could be another underlying cause of this undesired immune response experienced by this woman.

## Conclusion

Immediate type I hypersensitivity reactions to spices are rare but they do occur. In most cases, they could go unnoticed

because they are mild thus ignored. Very few cases are published on spices allergy or hypersensitivity. Due to under reporting of these cases, it is difficult to determine how many people are affected at this point in time. This case report could mark the beginning of many such cases that go unnoticed and under reported.

## Disclosure Statement

The authors have no conflict of interests to declare.

## References

1. Gallagher L. Common Bowel Problem Linked to Chili Pepper Pain Receptor. Press Release Imperial College London. 2008.
2. Costa. Is it possible to have a spice allergy? Allergy Clinic London. 2021.
3. Amato G, Cagani Ca, Cecchi L, et al. Climate change, air pollution, and extreme events leading to increasing prevalence of allergic respiratory diseases. *Multidiscip Respir Med.* 2013;8(1):12. 3.
4. Surya. Chili Pepper Allergy Symptoms and Treatment. Instah daily Dose of Well-being. 2010.
5. Cesana P, Scherer K, Bircher AJ. Immediate Type Hypersensitivity to Heparins: Two Case Reports and a Review of the Literature. *Int Arch Allergy Immunol.* 2016;171(3-4):285-9.
6. Harr T, Scherer K, Tsakiris DA, et al. Immediate type hypersensitivity to low molecular weight heparins and tolerance of unfractionated heparin and fondaparinux. *Allergy.* 2006;61(6):787-788.
7. Ison MG, Michaels MG. AST Infectious Diseases Community of Practice. RNA respiratory viral infections in solid organ transplant recipients. *Amer J Transplant.* 2009;9(4):S166. 4.