

Wheat-dependent Exercise-induced Anaphylaxis

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Abstract Gluten-related disorders are an emerging worldwide with a global prevalence estimated at 5% in the general population. They include celiac disease, nonceliac gluten sensitivity and wheat allergy. Specifically, the peculiar wheat-dependent exercise-induced anaphylaxis is a particular allergy that occurs after wheat ingestion followed by physical exercise.

Keywords: *gluten, wheat, allergy*

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1. Introduction

Gluten-related disorders are an emerging worldwide with an estimated prevalence as high as 5% in the general population. [1]

They include celiac disease, nonceliac gluten sensitivity and wheat allergy. The peculiar wheat-dependent exercise-induced anaphylaxis is a particular form of growing importance for patients with recurrent anaphylaxis.

Here is summarized and discussed the clinical presentation in a non-celiac boy.

2. Case Presentation

An 8-year-old child presented to the emergency department for acute dyspnea and wheezing. Physical examination revealed a labial angioedema and mild facial swelling.

According to his mother, these symptoms appeared shortly after good toasts of cereals at the same afternoon; a snack followed by a football match...

The boy underwent several allergy investigations, including skin prick & patch tests to various allergens; along with respiratory functional exploration.

Gathering different anamnestic and clinical findings (chiefly the positive wheat prick test reaction), this patient was finally diagnosed as having an exercise-induced asthma induced by wheat, a very particular respiratory allergy induced by gluten and classified as a wheat-dependent exercise-induced anaphylaxis.

Afterward, celiac autoimmunity screening was done and was negative.

Eviction diet (gluten free) was started and follow-up in allergy out-patient clinic is ordered.

3. Discussion

Although rare, food-dependent, exercise-induced anaphylaxis (FDEIA) is an evolving spectrum, known as a distinct form of allergic reaction induced over by the ingestion of a causative food and subsequent physical exercise.

Clinically, anaphylaxis/allergic reaction develops several hours most predictably when exercise takes place within a few hours of ingesting a specific food. These reactions range from urticaria and angioedema to dyspnea, hypotension, collapse, and shock. Particularly, it is the combination of the food and exercise that precipitates attacks, whereas the food and exercise are each tolerated independently. [2,3]

Specifically, wheat-dependent exercise-induced anaphylaxis (WDEIA) is rare and potentially severe as food allergy exclusively occurs after wheat ingestion, usually symptomatic after wheat consumption followed by physical exercise. [5]

Wheat is the most widely reported among a number of foods associated with FDEIA: Wheat contains a wide variety of proteins and therefore potential allergens, and several forms are related to some of these allergens. [6,7,8]

Wheat proteins are categorized into four fractions (according to their solubility): water (albumins), dilute salt solutions (globulins), aqueous alcohol (gliadins), and dilute alkali or acid (glutelins). Overlap is described between the spectra of proteins responsible for diverse clinical conditions. [9]

Diagnosis of wheat allergy relies on a consistent history, skin prick tests and/or specific IgE tests. The accuracy of diagnosis may be improved by measuring IgE responses to several wheat components. [10]

Wheat allergy is now classified among the spectrum of gluten-related disorders (GRDs): an emerging worldwide

problem of epidemiologically relevant conditions, with a global prevalence estimated at 5% in the general population. These conditions are related to gluten ingestion and include celiac disease, nonceliac gluten sensitivity and wheat allergy, including the peculiar wheat-dependent exercise-induced anaphylaxis. [1,11,12]

4. Conclusion

Beyond celiac disease, wheat may lead to several allergies with a myriad of signs: respiratory, digestive, cutaneous ...

Diagnosis should be assessed before introducing an eviction diet, as this allergy might be transient with an excellent outcome.

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