

Biology Grade 8

CHAPTER 3 : DISORDERS OF THE IMMUNE SYSTEM

Activity 2: Allergies

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Activity 2: Allergies

- The immune system's job is to tell which foreign substances are dangerous and which are not. Normally, it responds only to harmful substances, which helps keep the body safe.
- However, in some people, the immune system makes a wrong decision. It reacts to a harmless substance, like pollen or certain foods, as if it were harmful. This causes an **allergic reaction**.
- What are the signs of an allergy?
- What is it due to?



Allergy Symptoms



Trouble breathing,
wheezing or coughing



Hives, rash or itching



Sneezing



Runny nose



Red or watery
eyes

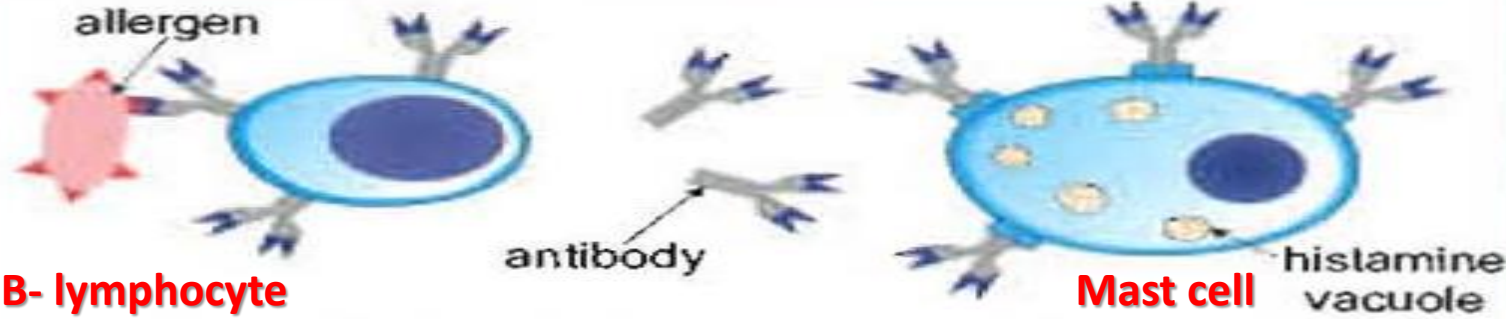


Nausea, vomiting or
diarrhea



Swelling of your face,
mouth, tongue or throat

1st contact:



2nd contact:



Treatment

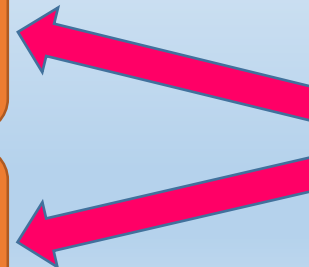
There is no medicine to stop allergy, but there are some medicines that block or reduce the secretion of histamine:

Example:

- Anti-histamine drugs (Histamid-F)
- Anti-inflammatory (Cortisone)

Rapid Allergy
(Signs appear in
<24hrs)

Delayed Allergy
(Signs appear in >
24hrs)



1. What is the name of the antigen that is responsible for allergic reaction.

Allergens

2. List the events that took place after the first contact of the allergen.

B-lymphocytes recognize the allergen and become sensitized.

B-lymphocytes produce anti- allergen antibodies.

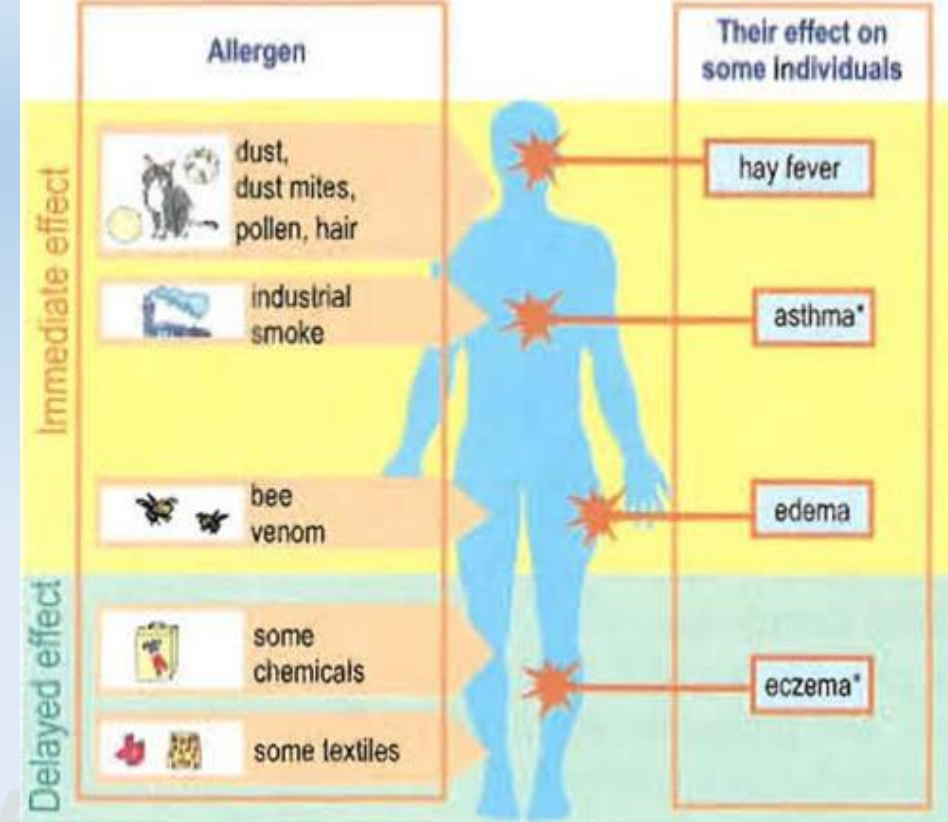
Antibodies bind to mast cells.

3. Name the biological molecule, which is responsible for all allergic signs.

Histamine, It is released after the second contact (allergic phase).

4. Name two medicines that can be useful in allergy case.

Anti-histamine medicines. Anti-inflammatory medicines like cortisone.



- **Hay fever:** runny nose and eye irritation, due to an allergy.
- **Asthma:** disorder characterized by wheezing, coughing and impaired breathing .
- **Eczema:** skin inflammation, characterized by the onset of unpleasant red spots.

Exercise 1:

In spring, Hala, her mother and her father were invited to the new house of her grandparents in the mountain. A big picnic was organized under the **pine trees** of the nearby forest. When Hala returned home, she was very happy.

Two weeks later, the family went back camping **under the pine trees** in the same forest. **Half an hour** after their arrival, Hala and her father started sneezing, had a runny nose and their eyes became red. Hala's mother, who felt very well, had to drive them back home. She called the doctor who diagnosed a hay fever and advised the uptake of a certain medicine.

1. Indicate the allergen that causes her hypersensitivity.

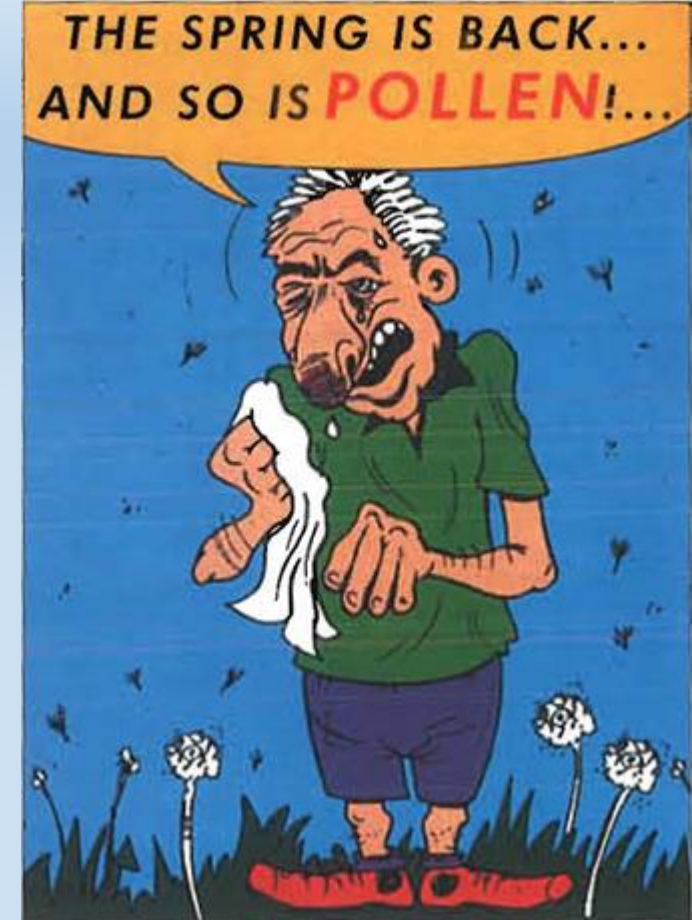
Pine pollen.

2. Pick out from text, the effect developed by this allergen.

Sneezing, had a runny nose and their eyes became red.

3. Classify this effect as immediate or delayed. Justify using the text.

Immediate since the symptoms appear half an hour after their arrival.

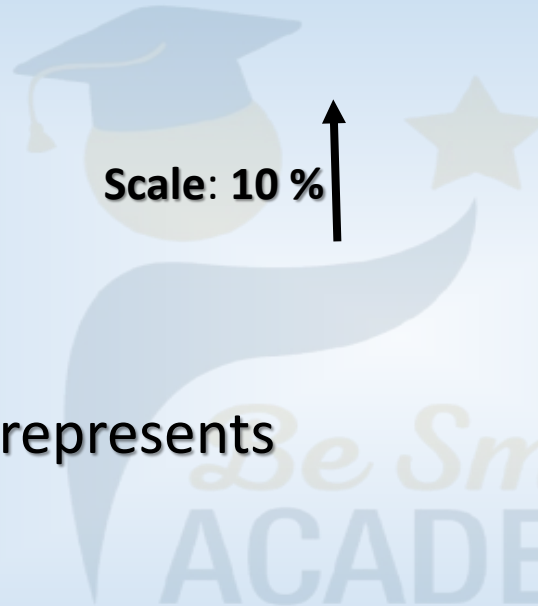


4. Name the type of medicine advised by the doctor in the above case.

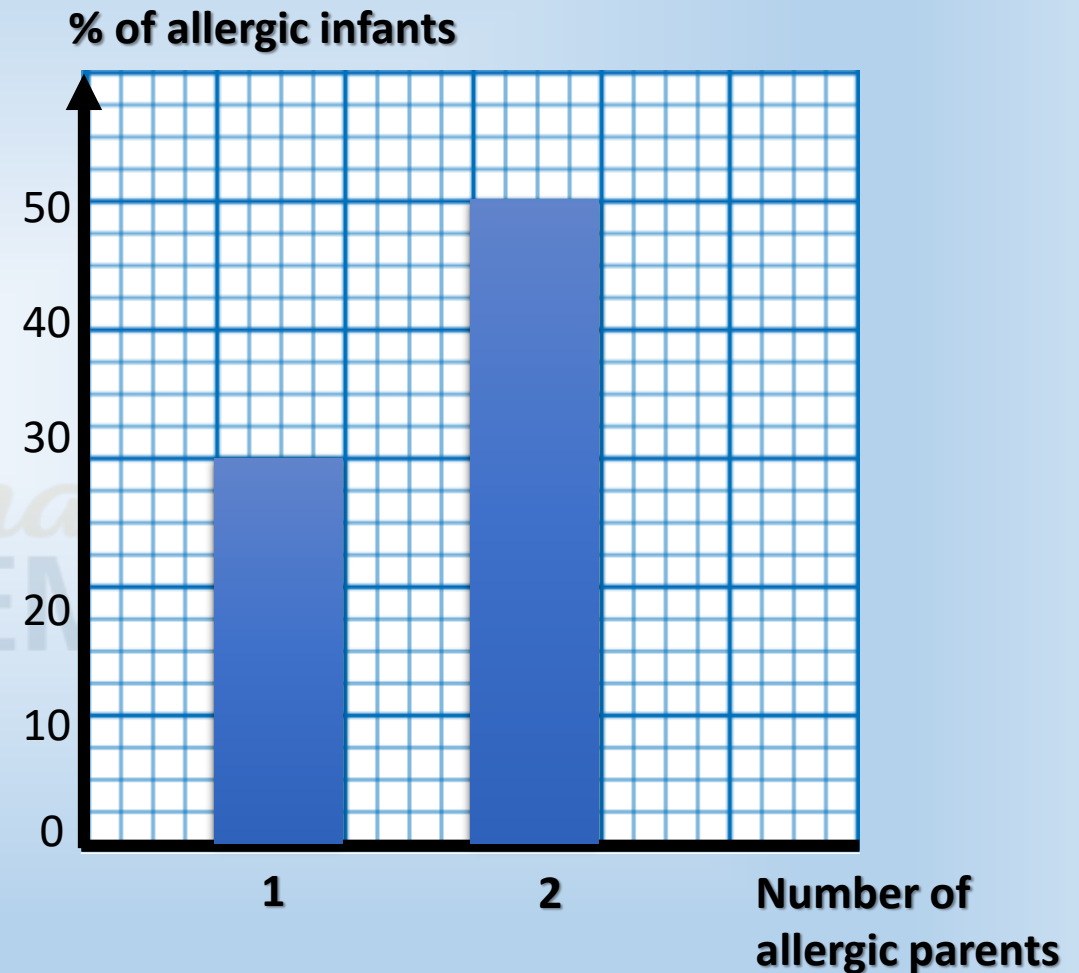
Anti-histamine drug.

The adjacent table shows the percentage of having allergic infants (babies) according to the number of allergic parents.

Number of allergic parents	1	2
% of allergic infants	30	50



Scale: 10 %



5. Construct a bar graph that represents the information in the table.

Title: This histogram shows the % of allergic infants as a function of number of allergic parents.

6. Compare the percentage of allergic infants in both cases mentioned in the table. What do you conclude?

Percentage of allergic infants when one of the parents are allergic (30%) is less than that when both parents are allergic (50%).

We conclude that allergy can be transmitted by heredity.

Number of allergic parents	1	2
% of allergic infants	30	50

7. Hala's mother is pregnant and expecting a new baby, referring to the text and the table, identify the % of having an allergic baby.

Hala's father is allergic but her mother isn't. So one of the parents is allergic. Then the percentage of having an allergic baby is (30%).