



Hypersensitivity nomenclature

On the day before Dr Do-a-lot leaves on a teaching sabbatical she gives her students a tutorial on hypersensitivity nomenclature and definitions. She commences by presenting two cases.

Case number 1

A cyclist, riding his mountain bike at high speed down the hill in Tokai forest, experiences a burning sensation on his forehead. Gravel flies as he skids to a halt and tears his helmet off. A honey bee stuck on the Velcro strap struggles sluggishly to escape. Although he has no other allergies, he reacts severely to bee stings. Already his left eye is swelling and he feels a little shaky. By the time his riding partner has caught up with him he is beginning to feel short of breath and has developed hives on his chest and arms. He always carries his emergency pack with him. His partner knows how to administer his adrenaline and gives the first dose without delay. He is transported by ambulance to hospital where he spends 24 hours under observation. He recovers without sequelae, and the following Sunday morning, the cyclist is back on the mountain.

Case number 2

A road cyclist takes off at dawn on a training ride around the peninsula in preparation for an imminent cycle tour.

He knows that this will be a tough session; there is a strong south-easterly wind blowing, and he has been struggling with allergic rhinitis and asthma symptoms for the past week. He takes two puffs of his blue bronchodilator, clips into his cleats, and sets off stoically. By the time he reaches Red Hill he has used his pump three more times. He realises that he has misjudged the conditions when he finds himself slouched on the verge, barely able to breathe. Another cyclist stops to assist him and flags down a motorist who rushes him to Fish Hoek Hospital. He is treated in the emergency room on bronchodilators and glucocorticosteroids. He is discharged after 6 hours on a course of oral prednisone. It is 2 weeks before he feels well enough to get back in the saddle.

Dr Do-a-lot explains that these are both cases of hypersensitivity. They are both cases of allergy. They are both IgE-mediated. They are, however, not both cases of atopy. All atopy is allergic, but not all allergy is atopic.

To make sense of how hypersensitivity reactions are classified, Dr Do-a-lot has drawn a simple algorithm adapted from the one she found in the EAACI (European Academy of Allergy and Clinical Immunology) position statement on the revised nomenclature for allergy. She also asks the students to study the important definitions.

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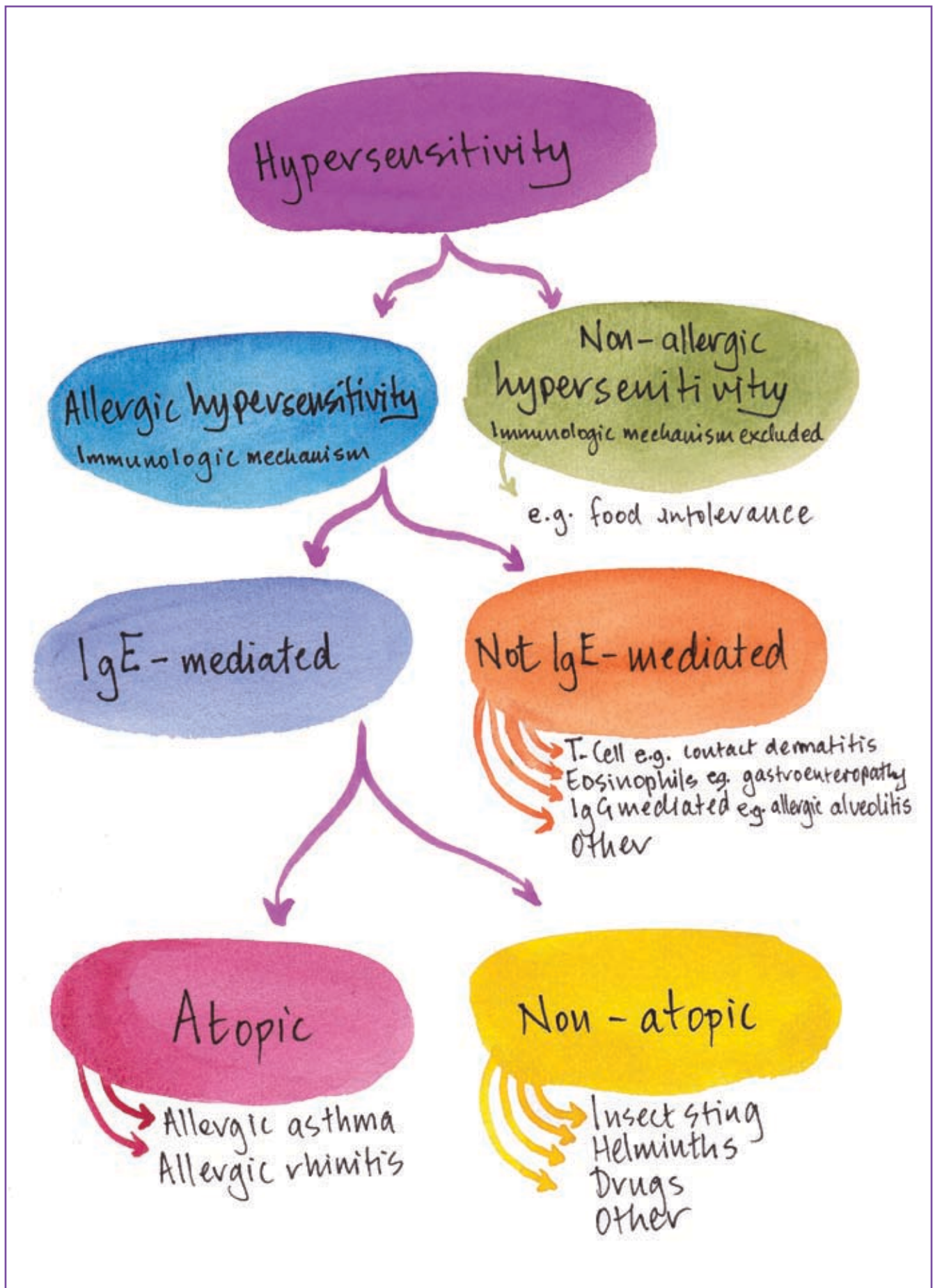
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References

1. A revised nomenclature for allergy: An EAACI position statement from the EAACI nomenclature task force. *Allergy* 2001;56:813-824.
2. WAO/EAACI Allergy Definitions www.worldallergy.org



Dr Do-a-lot's hypersensitivity algorithm

Hypersensitivity causes objectively reproducible symptoms or signs, initiated by exposure to a defined stimulus at a dose tolerated by normal subjects.



Allergy is a hypersensitivity reaction initiated by immunological mechanisms. It may be antibody-mediated allergy or cell-mediated allergy.

Atopy is a personal or familial tendency to produce IgE antibodies in response to low doses of allergens, usually proteins, and to develop typical symptoms such as asthma, rhinoconjunctivitis and eczema/dermatitis.

The term refers to the tendency but not the disease.



The term 'atopic asthma' should be replaced by 'allergic asthma'.



Not all IgE-associated allergic reactions occur in atopic patients. It is possible for example for a non-atopic individual to have an allergic reaction to helminths, with high levels of IgE.

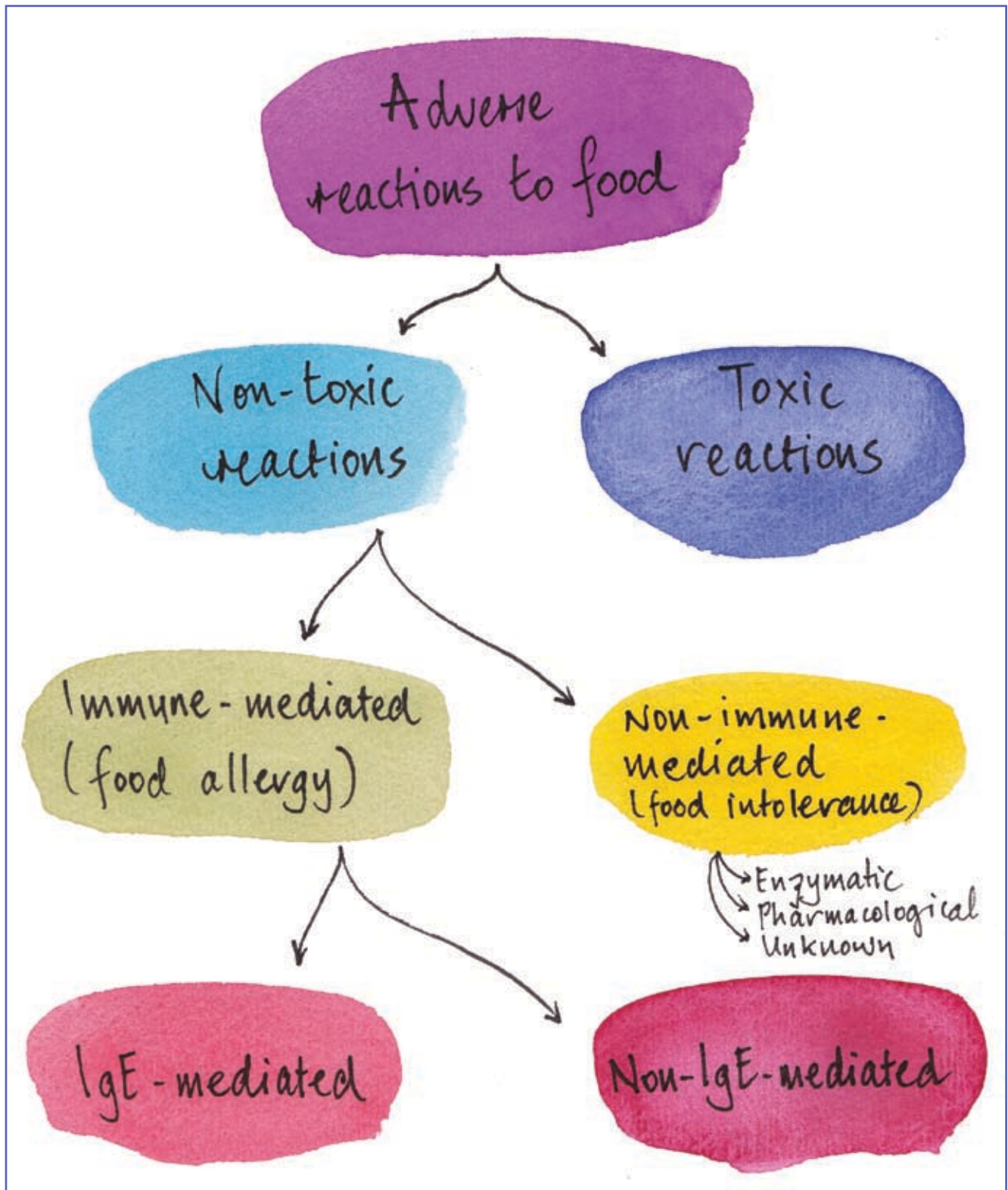


Antigens stimulating hypersensitivity mediated by an immunological mechanism ('allergy') are referred to as allergens.



Some examples of non-IgE-mediated allergy include: anaphylaxis due to immune complexes containing dextran (antithrombotic and volume expander), serum sickness, IgG (and IgE) in ABPA (allergic bronchopulmonary aspergillosis), pigeon breeders' and farmers' lung where IgG antibodies play a role, and cell-mediated allergic contact dermatitis.





Dr Do-a-lot's food allergy algorithm

