

Allergic rhinitis

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Summary

- Definition and classification
- Epidemiology
- Pathophysiology and mechanisms
- Risk factors
- Evaluation and diagnosis
- Associated conditions
- Management

Definition

- **Allergic rhinitis** is an IgE-mediated inflammatory nasal condition resulting from allergen introduction in sensitized individual.
- **The classic cardinal symptoms:**
 - Nasal congestion
 - Rhinorrhea (usually clear and watery)
 - Sneezing
 - Pruritus of nose, palate, throat or ears

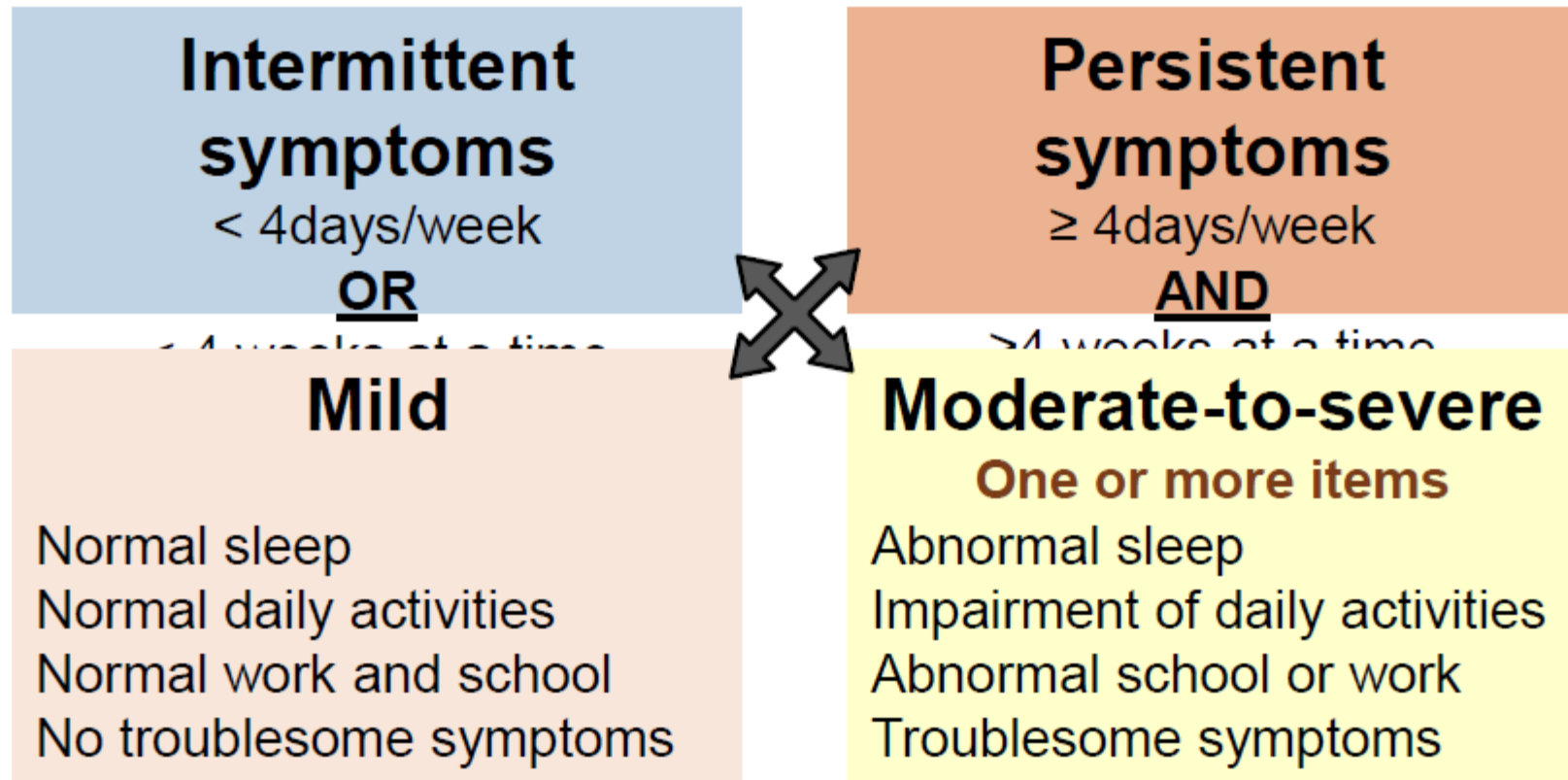


ARIA Classification of Allergic rhinitis (Old)

Seasonal AR	Perennial AR
Intermittent (cyclical exacerbation)	Persistent (year-round symptoms)
Outdoor allergens Tree pollinate (spring) Grasses (early summer) Weeds (late summer)	Indoor allergens House dust mites Animal dander Molds Cockroaches



ARIA Classification of Allergic rhinitis (New)



Rhinitis

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graph TD; Rhinitis --> Allergic; Rhinitis --> Infective; Rhinitis --> Other; Allergic --- AllergicList["• seasonal<br>• perennial<br>• occupational"]; Infective --- InfectiveList["• acute<br>• chronic"]; Other --- OtherList["• eosinophilic<br>• structural<br>• autonomic<br>• hormonal<br>• drug-induced<br>• atrophic"];
```

Allergic

- seasonal
- perennial
- occupational

Infective

- acute
- chronic

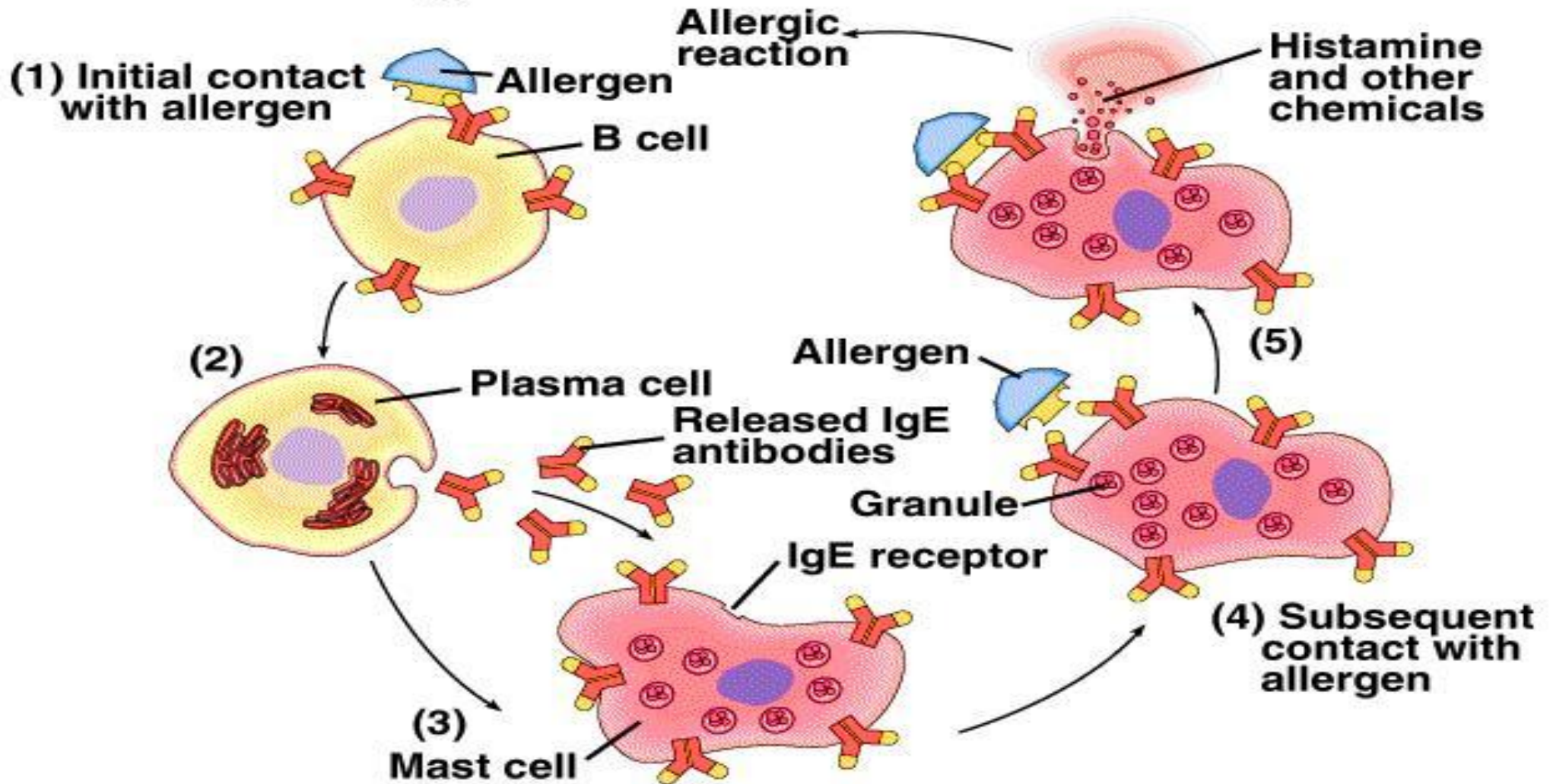
Other, includes:

- eosinophilic
- structural
- autonomic
- hormonal
- drug-induced
- atrophic



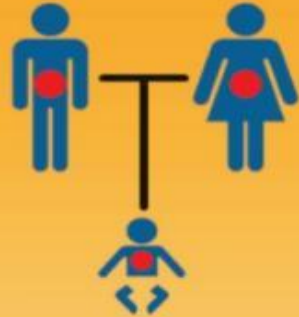
Pathogenesis

Ricki Lewis, *Life*, 3e. Copyright © 1998 The McGraw-Hill Companies, Inc. All rights reserved.

An Allergic Reaction — Overview



Risc Factors?

Anamneza familială	Lipsa alergiei în istoricul familiei	Unul din părinți suferă de alergie	Ambii părinți suferă de alergie
			
Riscul de dezvoltare a alergiei %	15	20–40	60–80

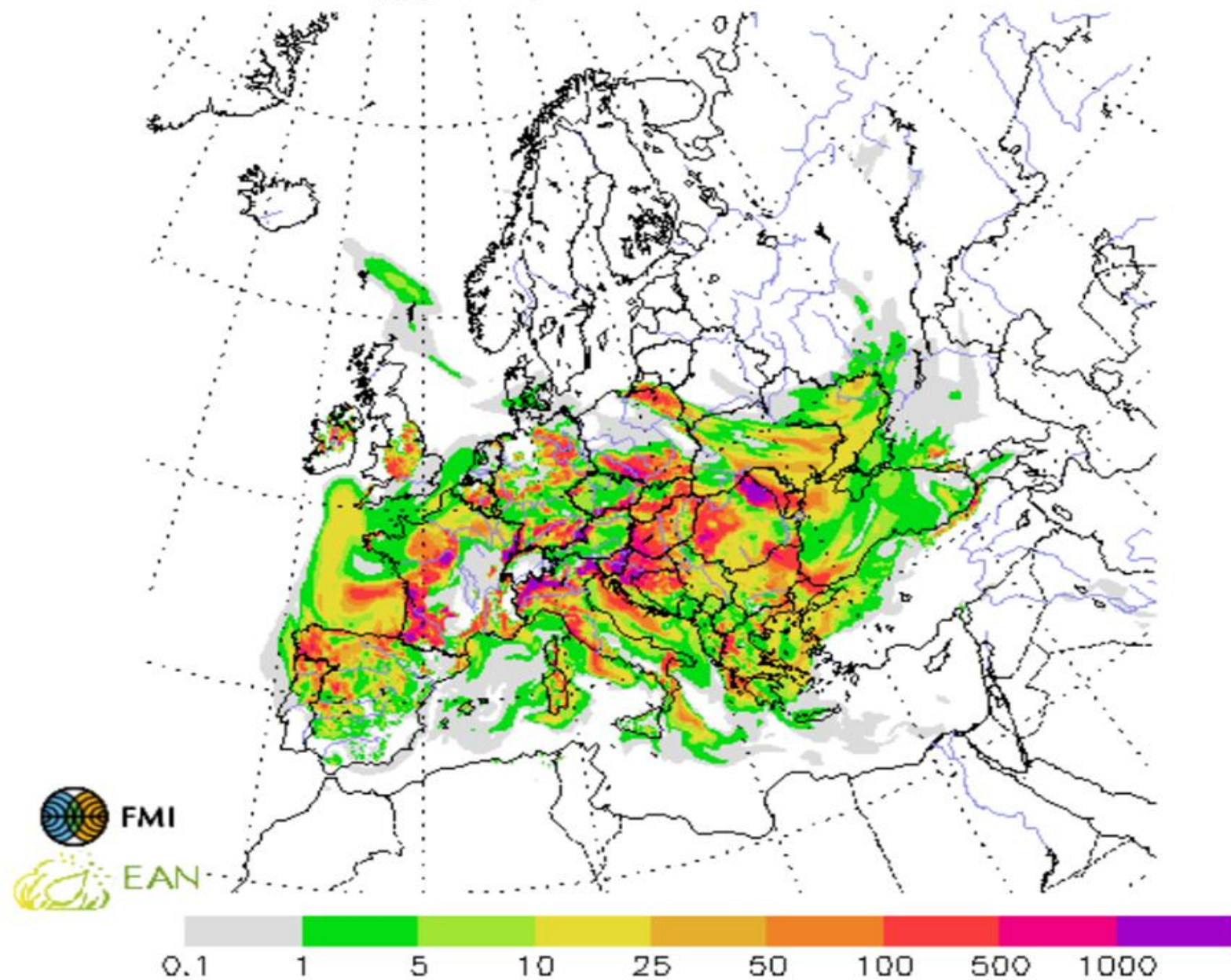
- Persoanele care sunt alergice la alte substanțe (polen, praf, etc)
- Persoanele care suferă de astm bronșic
- **Expunerea precoce la alergeni alimentari.**
- Creșterea utilizării în produsele alimentare a aditivilor



Allergens



SILAM model forecast: alder pollen
(#/m³) 12Z21FEB2019



Prezentare clinică

- Strănut (salve)
- Rinoree (poate declanșa o tuse cronică)
- Congestie/obstrucție nazală
- Hiperemie oculară
- Prurit nazal
- Lacrimația și pruritul ocular
- Pruritul la nivelul urechilor și palatului
- Anosmie
- Iritabilitate
- Fatigabilitate
- Somn alterat
- Implicare socială



Asteraceae pollen-food syndromes and associations

syndrome or association

pollen-food cross-reactivity

Mugwort-celery-spice syndrome

Mugwort-peach association

Mugwort-chamomile association

Mugwort-mustard syndrome

Ragweed-melon-banana association

Asteraceae-hazelnut association

Asteraceae-lychee association



[References: Popescu FD. Cross-reactivity between aeroallergens and food allergens. *World J Methodol.* 2015; 5(2): 31-50; Popescu FD, Vieru M, Ganea CS. Molecular allergy explorer test based on new state-of-the-art multiplex nano-bead technology in Asteraceae-hazelnut association. *Allergy* 2018; 74(S105):547]

Evaluation and diagnosis: **History**

- Classic symptoms of allergic rhinitis:
 - ▣ **Nasal congestion or obstruction**
 - Frequently alternates between both sides
 - Persistent unilateral obstruction: Anatomical defects, Inflammatory mass (nasal polyp), Tumor
 - ▣ **Sneezing:** in allergic disease often marked is by explosive paroxysms of 5 to 10 sneezes or more
 - ▣ **Rhinorrhea:** most often clear to white in color
 - Purulent secretions: chronic sinusitis or atrophic rhinitis
 - ▣ **Nasal pruritis**

Evaluation and diagnosis: **History**

Associated symptoms

- ❑ Ocular pruritis, erythema, and/or tearing
- ❑ Oral cavity or pharyngeal pruritis
- ❑ Wheezing or cough (reactive airway disease and/or asthma)

Additional associated symptoms

- ❑ Hyposmia or anosmia
- ❑ snoring or sleep-disordered breathing
- ❑ Aural congestion or pruritis
- ❑ Sore throat
- ❑ Halithosis

Evaluation and diagnosis: **History**

- **Presence of temporal patterns**
 - ▣ All rhinitis symptoms are **most intense during the early morning hours** (circadian variations)
 - ▣ Decrease in symptoms throughout the day: presence of an **indoor allergen** (HDM, animal dander, mold, cockroach)
 - ▣ Clear-cut worsening of symptoms in outside environments: probability of allergy to an **outdoor allergen** (pollen, mold)

Investigation

- **The hallmark of allergic rhinitis is evidence of specific IgE to a relevant allergen**
- **Allergy testing**
 - ▣ Skin prick test
 - ▣ Serum antigen-specific IgE

Skin-prick test (SPT)

- **To confirm the diagnosis of AR** and differentiate from non-allergic types of rhinitis
- **High sensitivity and specificity (around 80%)**
 - ▣ more sensitive than serum testing with the added benefit of lower cost

Serum antigen-specific IgE (sIgE)

- Radioallergosorbent test (RAST)
 - ▣ Radioactive anti-IgE for labeling IgE in serum
- The safety profile of serum sIgE testing is the best of all available allergy tests
- **Not influenced by drugs or skin disease**
- levels of sIgE may correlate with severity of AR symptoms

Radiographic imaging

- **Routine radiographic imaging is not recommended** for the diagnosis of allergic rhinitis
- **Consider to rule in/out other conditions:**
 - Complications or comorbidities: rhinosinusitis, nasal polyposis
 - Symptoms not typical of chronic rhinitis (chronic purulent rhinorrhea, alteration in sense of smell)
 - Headache
 - Not responsive to therapy of rhinitis

Differential diagnosis in chronic rhinitis

Diagnosis	Pre-school	School	Adolescent
Choanal atresia or stenosis	Obstruction without other features of allergic rhinitis		
Immuno-deficiency	Persisting mucopurulent discharge		
Encephalocele	Unilateral nasal "polyp"		
Adenoidal hypertrophy	Mouth breathing, discoloured nasal secretions, snoring in the absence of other features of allergic rhinitis		
Foreign body	Unilateral discoloured nasal secretions, foul smell		

Diagnosis	Pre-school	School	Adolescent
Rhinosinusitis		Discoloured nasal secretions, headache, facial pain, poor smell, halitosis, cough	
Cystic fibrosis		Bilateral nasal polyps, poor smell, chest symptoms, symptoms of malabsorption, failure to thrive	
Primary ciliary dyskinesia		Persisting mucopurulent discharge without respite between "colds", bilateral stasis of mucus and secretions at the nasal floor, symptoms from birth	
CSF leakage		Colourless nasal discharge often with a history of trauma	
Coagulopathy		Recurrent epistaxis with minimal trauma	
Septal deviation		Obstruction in the absence of other features of allergic rhinitis	

Management of Allergic rhinitis

- Control the symptoms & Prevent the complication
 - ▣ Allergen avoidance
 - ▣ Pharmacotherapy
 - ▣ Immunotherapy

Pharmacotherapy

- Omalizumab
- Cromolyn
- Antihistamines
- Leukotriene receptor antagonists (LTRAs)
- Intranasal anticholinergics
- Decongestants
- Nasal saline
- Corticosteroids
- Combination therapy

ARIA recommendation for management of allergic rhinitis

