

# 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

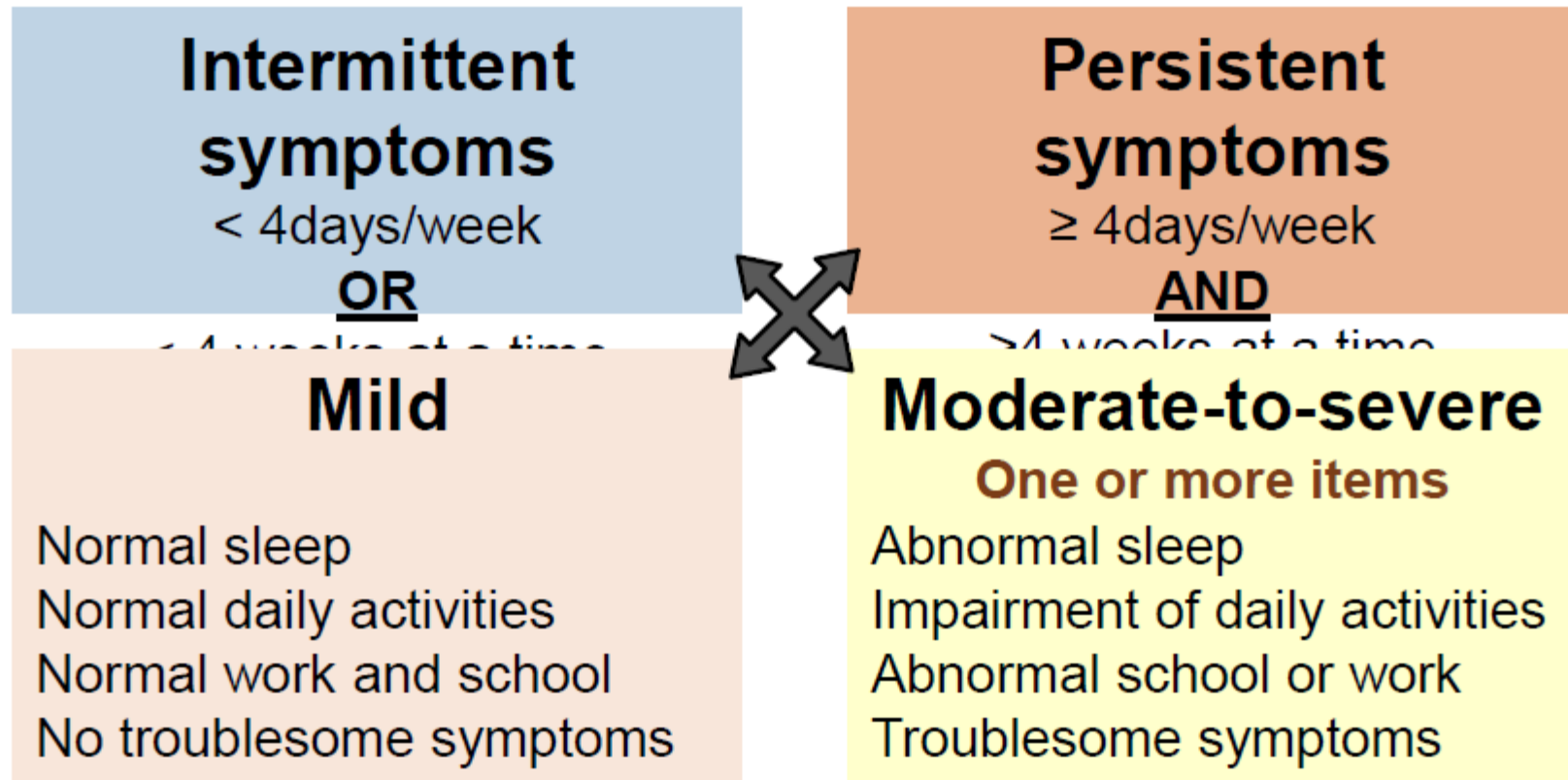


# ARIA Classification of Allergic rhinitis (Old)

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



# ARIA Classification of Allergic rhinitis (New)



## Rhinitis

```
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"];
```

A flowchart starting with 'Rhinitis' at the top, which branches into three categories: 'Allergic', 'Infective', and 'Other, includes:'. Each category has a list of sub-types below it.

### Allergic

- seasonal
- perennial
- occupational

### Infective

- acute
- chronic

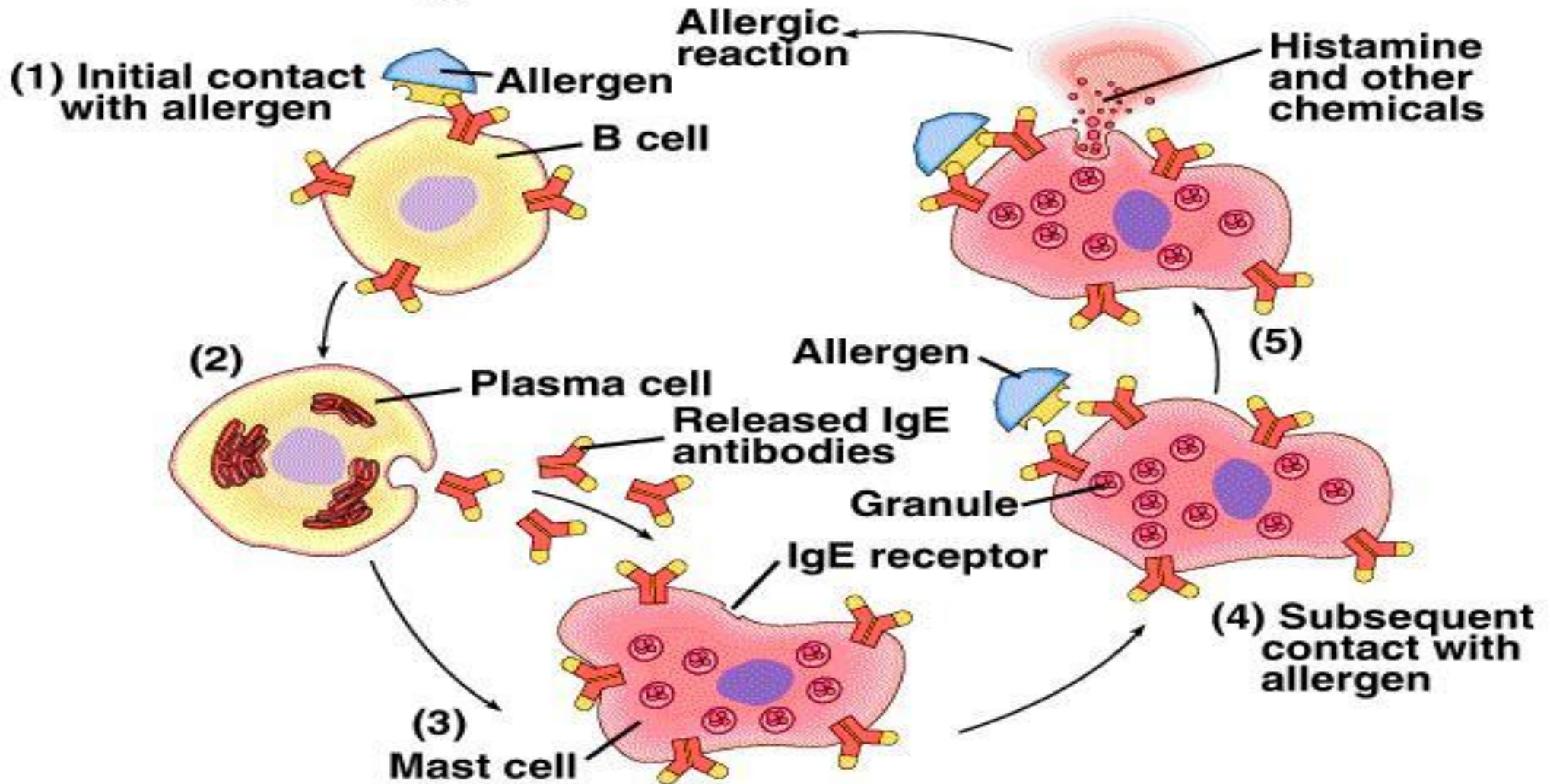
### Other, includes:

- 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

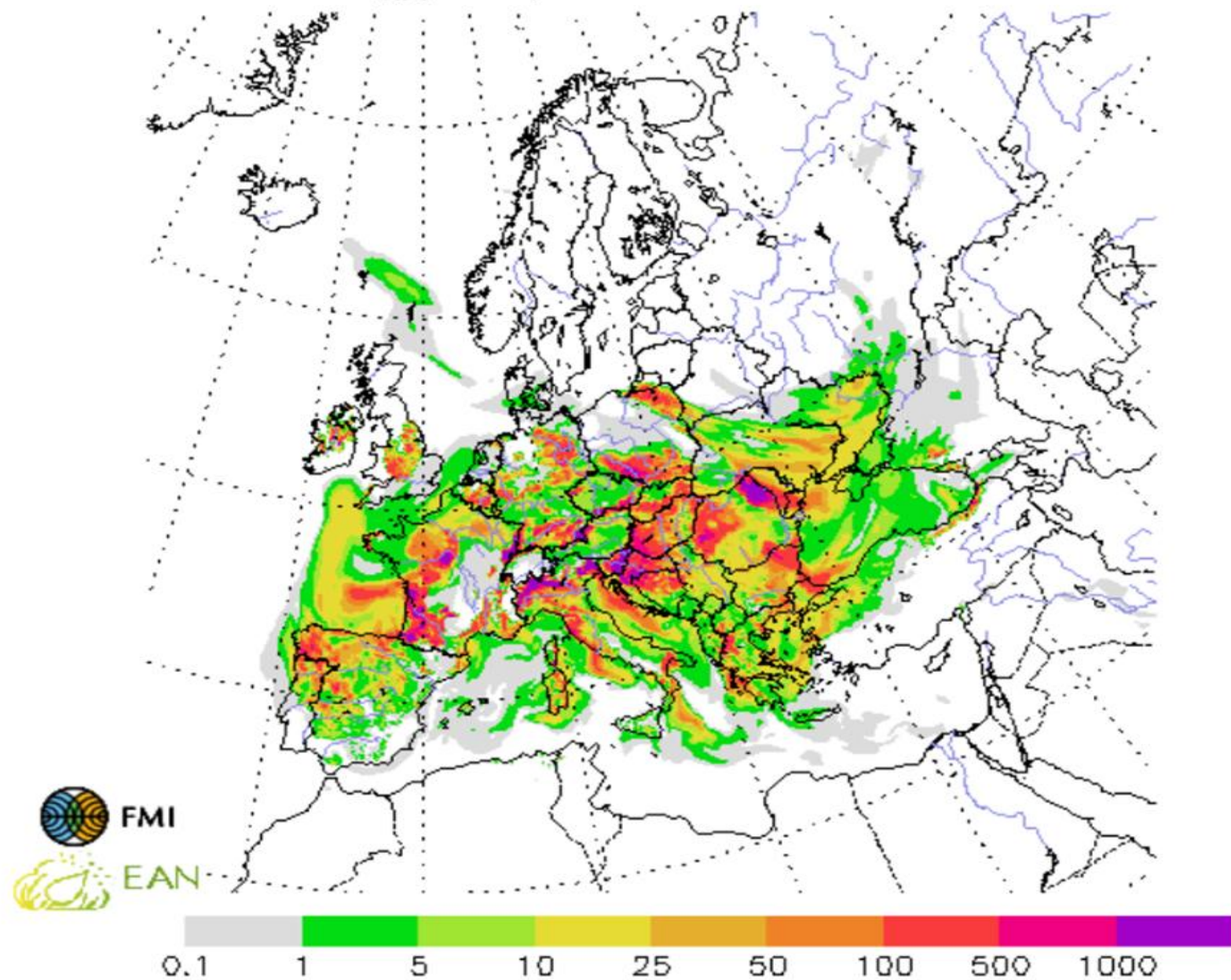




# Allergens

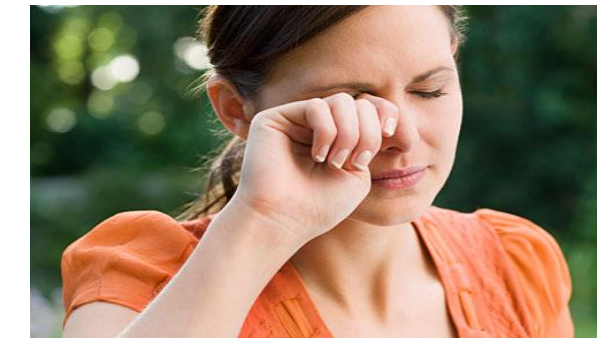


SILAM model forecast: alder pollen  
(#/m<sup>3</sup>) 12Z21FEB2019



# 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
<b>Choanal atresia or stenosis</b>	Obstruction without other features of allergic rhinitis		
<b>Immuno-deficiency</b>	Persisting mucopurulent discharge		
<b>Encephalocele</b>	Unilateral nasal "polyp"		
<b>Adenoidal hypertrophy</b>	Mouth breathing, discoloured nasal secretions, snoring in the absence of other features of allergic rhinitis		
<b>Foreign body</b>	Unilateral discoloured nasal secretions, foul smell		

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

