

# Allergic Rhinitis

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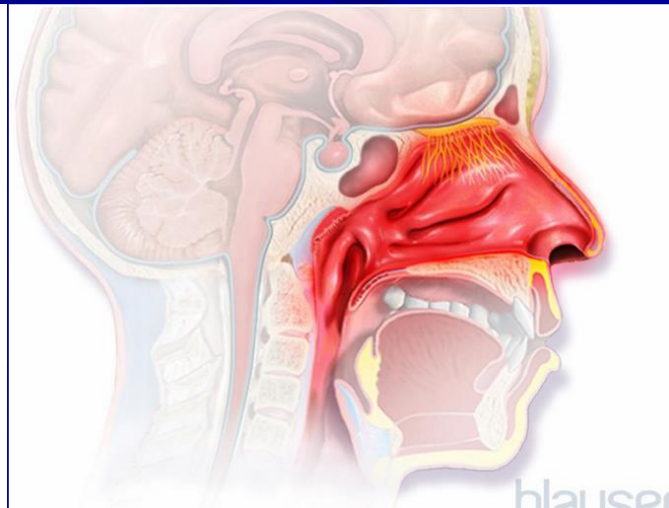
**Iran University of Medical Sciences**

# آنچه قرار است مرور شود:

- تعریف رینیت آلرژیک؟
- چرا رینیت آلرژیک مهم است؟
- رینیت آلرژیک چه علایمی دارد؟
- تشخیص های افتراقی؟
- راههای تایید تشخیص؟
- درمان؟
- چه زمانی به آلرژیست ارجاع دهیم؟

# Rhinitis

- — Rhinitis refers to inflammation of the nasal passages. This inflammation can cause a variety of annoying symptoms, including sneezing, itching, nasal congestion, runny nose, and postnasal drip





# Allergic rhinitis

## Definition

Inflammatory condition of nasal mucosa induced by an allergen-IgE interaction in sensitized individuals.

**AR is a Global Health Problem**

affecting 10-25% of worldwide population with increasing prevalence

### *Guidelines*

#### **Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines—2016 revision**



Jan L. Brożek, MD, PhD,<sup>a,b</sup> Jean Bousquet, MD, PhD,<sup>c</sup> Ioana Agache, MD, PhD,<sup>d</sup> Arnav Agarwal, BHSc,<sup>a,e</sup>

مهم است چون شایع هست

- **Allergic rhinitis (AR)** is a common chronic disease affecting 20–30% of children.
- NELSON TEXTBOOK OF PEDIATRICS, TWENTY-FIRST EDITION

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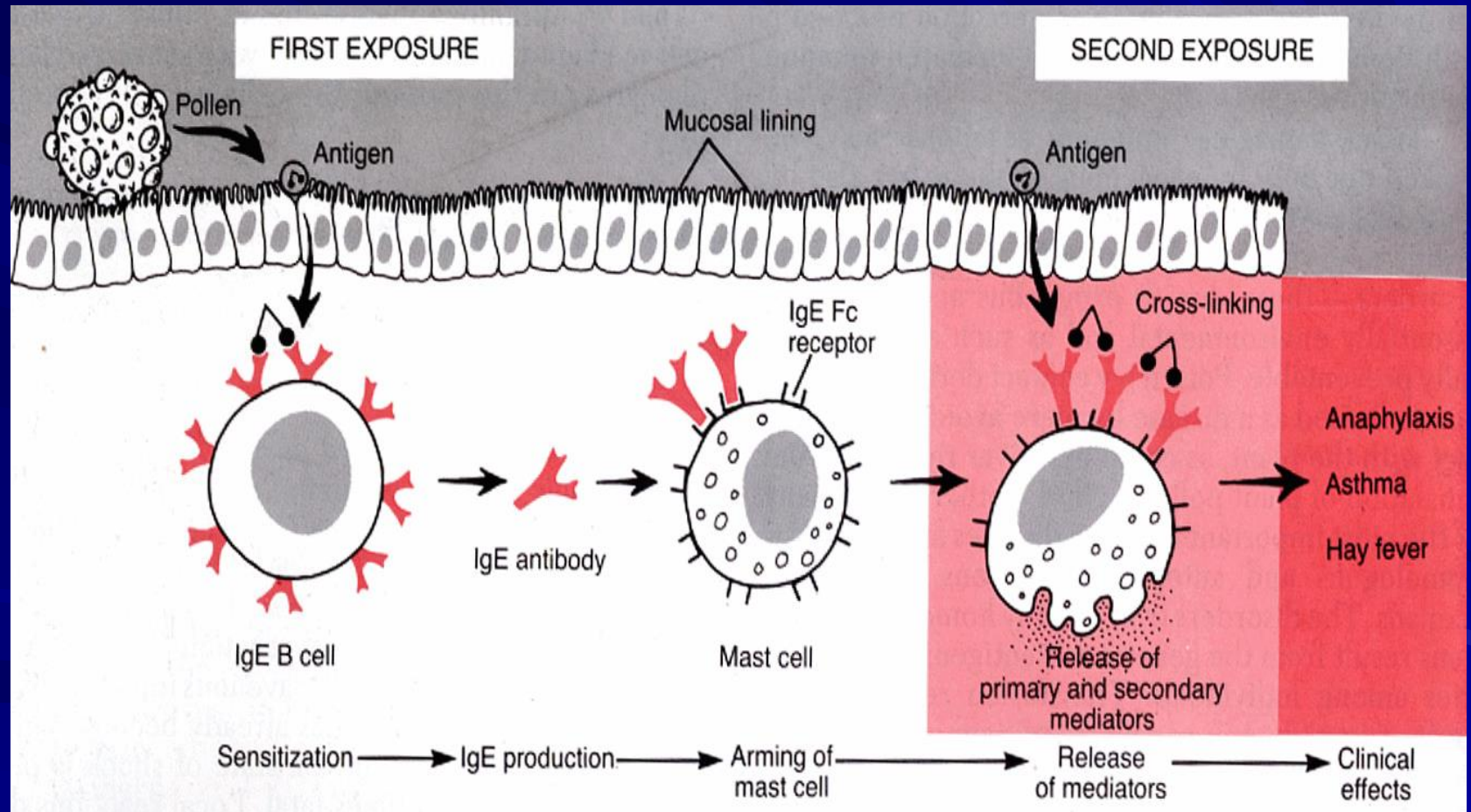
**Allergic Rhinitis**

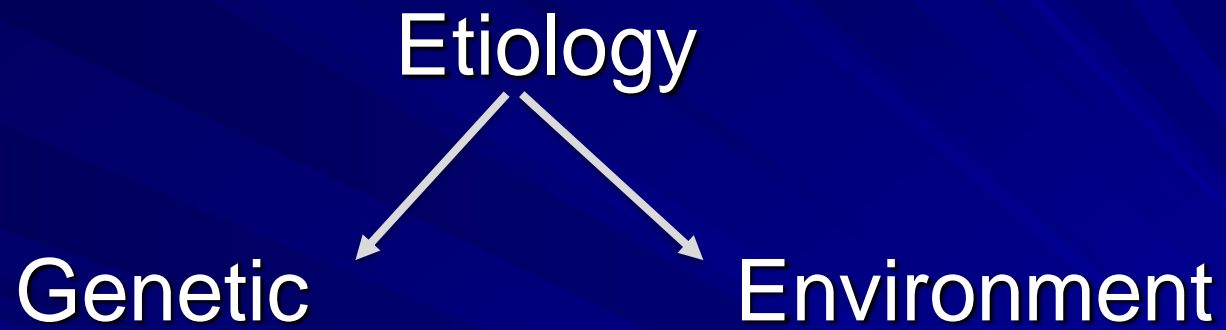
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Is the most common  
respiratory disease  
and is increasing!

AR is an atopic disease

# ***The Allergic Reaction***





# Etiology

new findings of Nelson

- Heritability of allergic conditions attests to genetic factors, but
- Changes in the environment, diet, and the microbiome
- The symptoms may appear **in infancy**; with the diagnosis generally established by the time the child reaches age 6 yr.
- The prevalence peaks late in childhood

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# Etiology

## new findings of Nelson

- ❖ Children between 2 and 3 yr old who have elevated anti **cockroach and anti mouse** IgE are at increased risk of wheezing, AR, and atopic dermatitis.
- ❖ The occurrence of **3 or more episodes** of rhinorrhea in the 1st yr of life is associated with AR at age 7 yr.
- ❖ Favorably, the exposure to **dogs, cats**, and endotoxin early in childhood protects against the development of atopy.

# Etiology

new findings of Nelson

- **Prolonged breastfeeding**, not necessarily exclusive, is beneficial.
- There is also a decreased risk of asthma, AR, and atopic sensitization with **early introduction** to wheat, rye, oats, barley, fish and eggs.

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# AR classification

- AR classification as **seasonal or perennial** is giving way to the designations **intermittent and persistent**.
- AR may also be categorized as mild-intermittent, moderate-severe intermittent, mild-persistent, and moderate-severe persistent

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# Classification based on severity

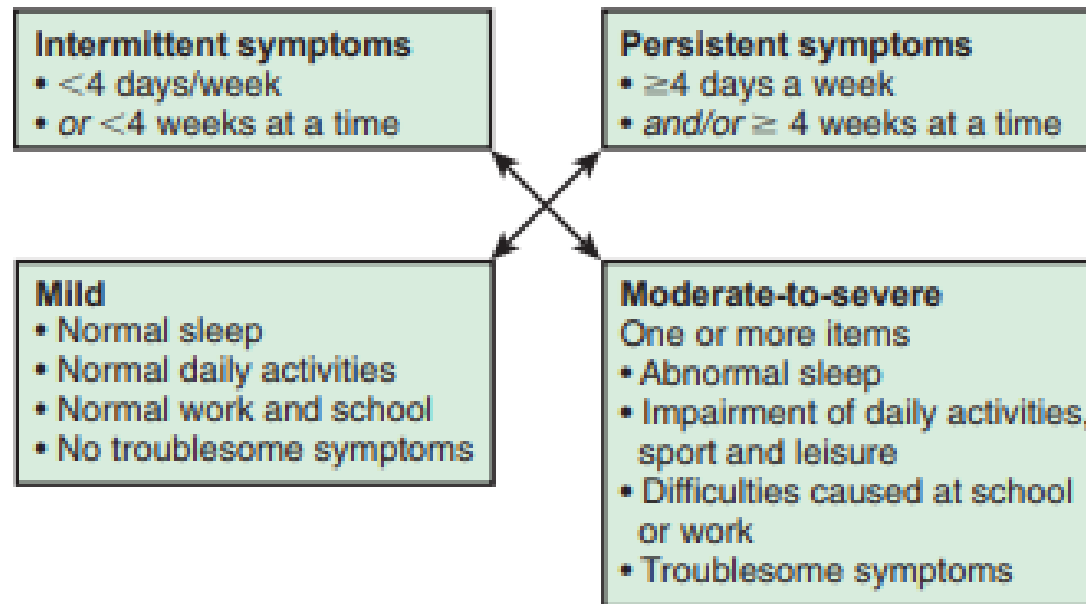
- troublesome symptoms
- sleep
- daily activities, and hobby
- work or school.

■ If all of them were normal: mild AR

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**Fig. 168.1** ARIA classification of allergic rhinitis. Every box can be subclassified further into seasonal or perennial on the basis of timing of symptoms or when causative and allergen therapeutic factors are considered. For example, a UK patient with grass pollen allergy might have moderate-severe persistent seasonal rhinitis in June and July and may be suitable for specific allergen immunotherapy. ARIA, Global Allergic Rhinitis and its Impact on Asthma. (From Scadding GK, Durham SR, Mirakian R, et al: *BASCI guidelines for the management of allergic and non-allergic rhinitis*, Clin Exp Allergy 38:19–42, 2008.)

# **Rhinitis phenotypes AND Differential diagnosis**

# Rhinitis phenotypes

## *most common forms*

- Allergic
- Infectious: Viral (acute), bacterial, fungal
- Non-Allergic, Non-Infectious, Rhinitis
- Non-Allergic Rhinitis with Eosinophilia Syndrome  
(NARES)
- Chronic Rhinosinusitis with or without Polyps:

Hypertrophic, inflammatory disorder that can affect allergic or non-allergic individuals

# Rhinitis phenotypes

## *less common forms*

- **Occupational:** May be allergic or non-allergic
- **Drug-induced:** Aspirin, some vasodilators
- **Hormonal:** Pregnancy, menstruation, hormonal contraceptives, thyroid disorders
- **Food-induced** (gustatory)
- **Cold air-induced** (skier's nose)
- **Atrophic** (rhinitis of the elderly)

# Conditions that mimic rhinitis

- Cystic fibrosis
- Mucociliary defects
- Cerebrospinal rhinorrhoea
- Anatomic abnormalities
- Foreign bodies
- Tumors
- Granulomas: Sarcoid, Wegener's, Midline Granuloma

- Symptoms of AR may be ignored or mistakenly attributed to a respiratory infection.

- 
- NELSON TEXTBOOK OF PEDIATRICS,  
TWENTY-FIRST EDITION

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# ***Clinical Manifestations***

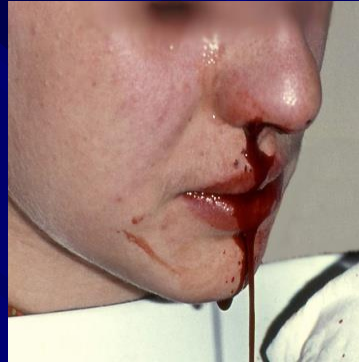
	<b>Others</b>
■ Repetitive sneezing	■ Eye symptoms
■ Watery rhinorrhea	■ Ear symptoms
■ Nasal pruritus	■ Postnasal drainage
■ Nasal congestion	

# CLINICAL MANIFESTATIONS

- ✱ Mistakenly attributed to a respiratory infection.
- ✱ **Itching** (grimacing, twitching, and nasal picking, epistaxis)
- ✱ **Allergic salute**
- ✱ Nasal crease,
- ✱ Other symptoms



- headache
- wheezing & cough
- lose of smell and taste
- epistaxis
- snoring
- sleep disturbance
- irritability
- cognitive impairment
- learning disability



# PHYSICAL EXAMINATION

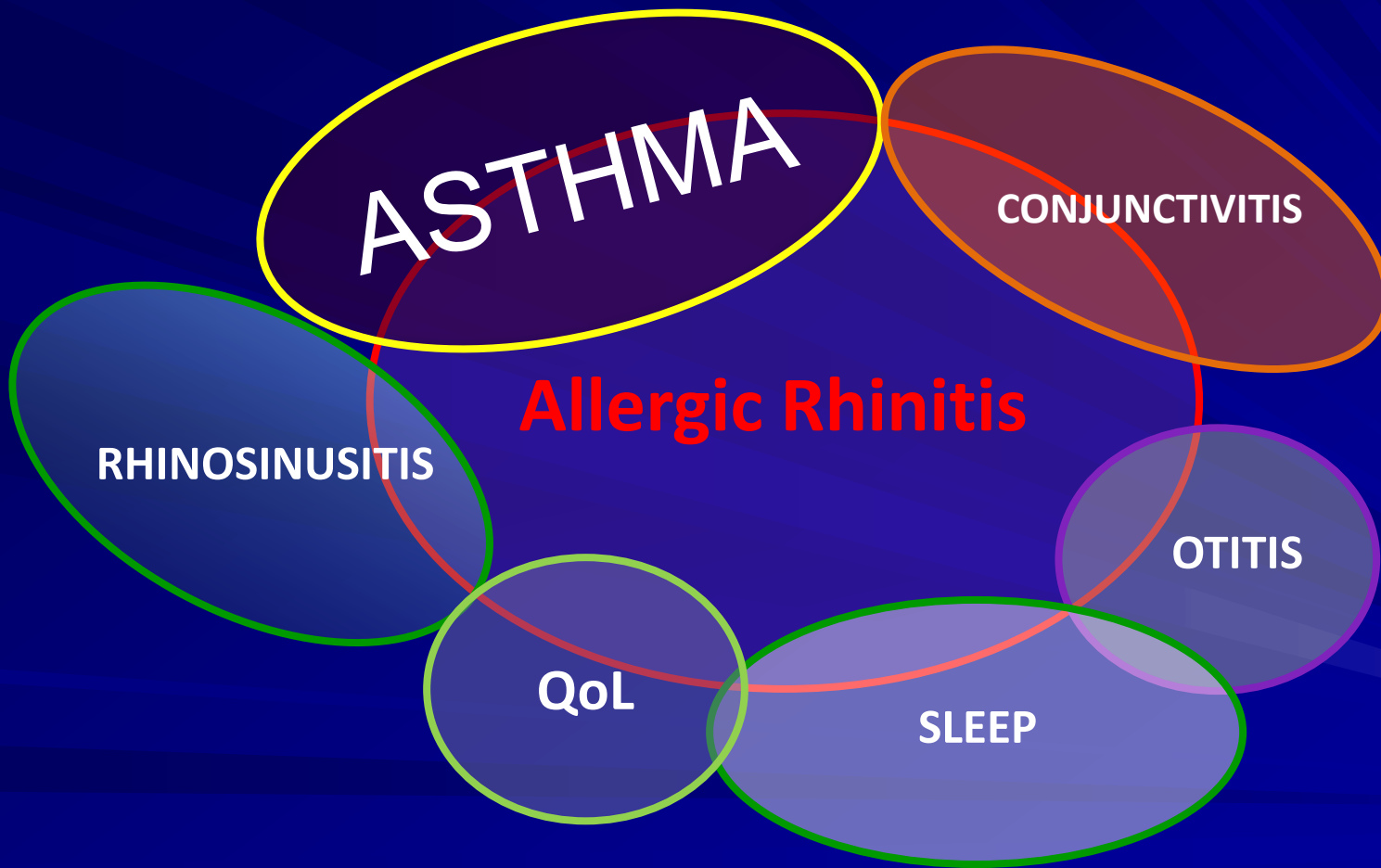
- Allergic shiner
- Dennie Morgan line
- Allergic crease
- Allergic salute
- Nasal mucosa may appear normal or pale bluish, swollen with watery secretions but only if patient is symptomatic
- Exclude structural problems (polyps, deflected nasal septum)

## Others:

nasal voice, constant mouth breathing, frequent snoring, coughing, repetitive sneezing, chronic open gape of the mouth, weakness, malaise, irritability



# Rhinitis and its co-morbidities



■ دختر 4 ماهه با ترشح بینی از 2 ماه قبل

■ مصرف مکرر آنتی بیوتیک با بهبودی اندک و عود بعد از قطع آن

■ ترشح یکطرفه هست.

■ اخیرا مادر احساس میکند که نفس بچه بدبو شده و بی اشتها شده است

■ پسر 9 ساله با انسداد بینی

■ تنفس با دهان باز دارد.

■ خروپوف دارد

■ عطسه و خارش بینی اندک هست.

■ پسر 14 ساله با ترشح پشت حلق، حس بویایی ندارد

■ سر درد و احساس فشار در صورت دارد

# چه زمانی به تشخیص رینیت آلرژیک شک کنیم؟

- شروع علائم زیر 6-7 ماهگی
- علائم یکطرفه
- از دست رفتن حس بویایی
- عدم پاسخ به درمان اولیه مناسب

# Management of AR

- Allergen Avoidance
- Pharmacotherapy
- Immunotherapy





***allergen  
avoidance  
indicated  
when possible***

***pharmacotherapy***  
safety  
effectiveness  
easy to be  
administered

***costs***

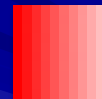
***immunotherapy***  
effectiveness  
specialist prescription  
may alter the natural  
course of the disease

***patient's  
education  
always indicated***

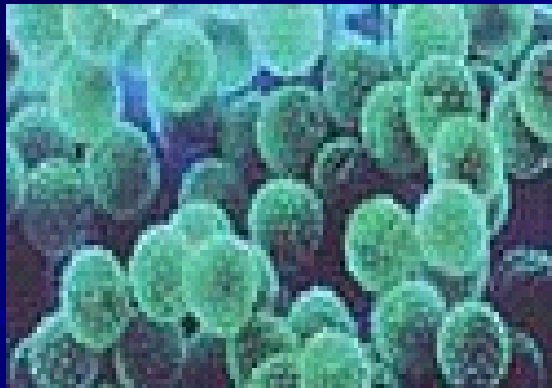
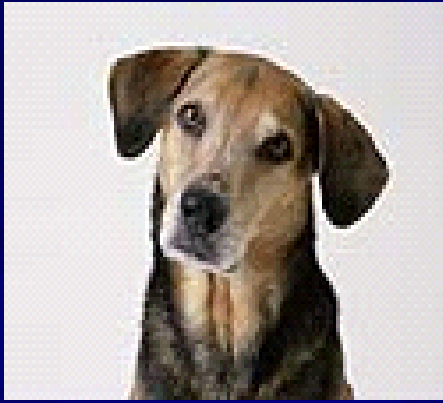
■ سوالات مهم؟

■ آیا بیمار مبتلا به رینیت آلرژیک احتیاج به  
پرهیز غذایی دارد؟

خیر



# Globally important sources of allergens



## ■ 1. Allergens

- House dust mites
- Grass, tree and weed pollen
- Pets
- Cockroaches
- Molds
- **Pollutants and Irritants**

# Aeroallergen vs food allergens



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# PHARMACOTHERAPY OF ALLERGIC RHINITIS

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## TREATMENT

Guideline-directed management has been shown to improve disease control. **Global Allergic Rhinitis and its Impact on Asthma (ARIA)** provides an evidence-based approach to treatment and includes quality-of-life measures useful for the evaluation of symptoms and the assessment

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■ آنتی هیستامین موثر هست؟

■ چه آنتی هیستامینی بدهیم؟

# Agents and actions

	Oral antihistam ines	Nasal antihistam ines	Cys-LT1 receptor antagonists	Nasal steroids	Nasal decongest ants	Oral decongest ants	Nasal ipratropium	Nasal cromones
Rhinorrhea	++	++	++	+++	0	0	+++	+
Congestion	+	+	+	+++	++++	++	0	+
Sneezing	++	++	++	+++	0	0	0	+
Pruritus	++	++	+	+++	0	0	0	+
Ocular symptoms	++	0	++	++	0	0	0	0
Onset of action	1 hr	15 min	48 hr	12 hr	5-15 min	1 hr	15-30 min	-
Duration	12-24 hr	6-12 hr	24 hr	12-48 hr	3-6 hr	12-24 hr	4-12 hr	2-6 hr

*Modified from van Caunvenberge P Allergy 2000;55:116-134*

■ آنتی هیستامین

■ روی انسداد بینی (کیپ شدن بینی) تاثیر ندارد

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# Nasal Corticosteroids

Beclomethasone dipropionate

Budesonide

Ciclesonide\*

Flunisolide

Fluticasone propionate

Mometasone furoate

Triamcinolone acetonide

\* Currently only approved for asthma

# Nasal corticosteroids

- **Most potent** anti-inflammatory agents
- Effective in treatment of **all nasal symptoms** including obstruction
- **Superior to** anti-histamines and anti-leukotienes
- **First line** pharmacotherapy **for persistent allergic rhinitis**

# Nasal corticosteroids

- Overall safe to use
- Adverse Effects
  - Nasal irritation
  - Epistaxis
  - Septal perforation (extremely rare)
  - HPA axis suppression (inconsistent and not clinically significant)
  - Suppressed growth (only in one study with beclomethasone)

استروئید بینی باعث آتروفی مخاط نمیشود.  
استروئید بینی باعث اختلال رشد نمی شود  
حتما باید بیمار از نظر عوارض احتمالی  
مونیتور شوند اما بیهوده بیماران را از  
مصرف اسپری استروئید نترسانیم

# Agents and actions

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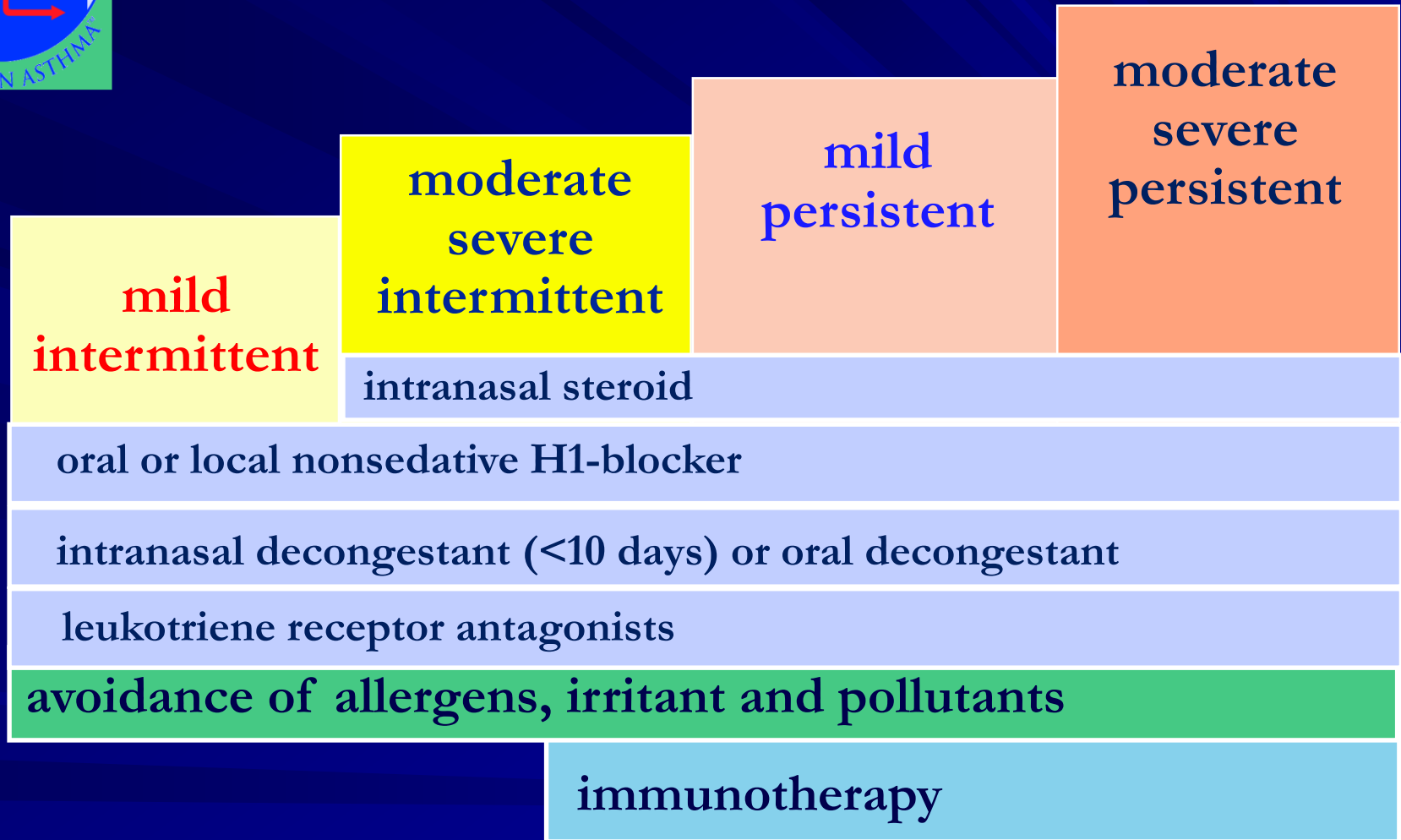
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# Allergen immunotherapy (vaccines)

- Subcutaneous
- Sublingual
- Nasal



# Management of Allergic Rhinitis: ARIA Guidelines



# AR & Asthma

- AR is also frequently associated with asthma, which is found in
- 15% to 38% of patients with AR,
- and nasal symptoms are present in 6% to 85% patients with asthma
- In addition, AR is a risk factor for asthma,
- and uncontrolled moderate-to-severe AR affects asthma control

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# In patients with rhinitis:

- Routinely query for **symptoms** suggestive of asthma
- Perform chest **examination**
- Consider **lung function testing**
- Consider tests for **bronchial hyperresponsiveness** in  
selected cases

# ■ When refer to an allergist



AMERICAN ACADEMY OF ALLERGY  
ASTHMA & IMMUNOLOGY

## How the Allergist/Immunologist Can Help: Consultation and Referral Guidelines Citing the Evidence

### Who to refer to an allergist/immunologist:

- Patients with **prolonged** or **severe** manifestations of rhinitis with **co-morbid conditions** (e.g. asthma, recurrent sinusitis, nasal polyps); with symptoms interfering with quality of life and/or ability to function; or **who have found medications** to be ineffective or **have had adverse reactions** to medications.



*Thank you*

