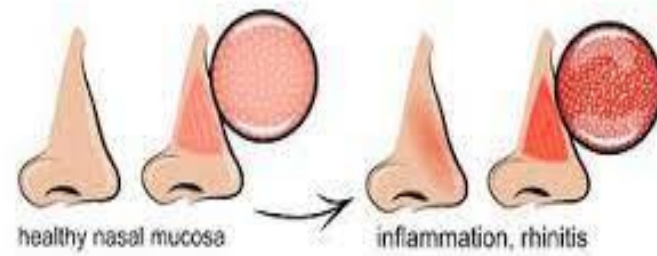


Allergic Rhinitis

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RHINITIS



A symptom complex including two or more of :

- **Nasal itching**
- **Sneezing**
- **Rhinorrhea**
- **Nasal blockage**

Allergic Rhinitis

- A global health problem
- **The commonest immunological disorder in man!**
- IgE- mediated
- Caused by sensitization to inhaled allergens
- A prevalence of 20-30% in children
- In children, may reduce quality of life!

AR may

affect contiguous organs such as sinuses, ears and chest and cause :

- Sleep problems
- Reduced school/work performance
- Family difficulties
- Decreased involvement in outdoor activities.

AR

- Predisposes to **asthma**
- Reduces the control of **concurrent childhood asthma**
- Increasing likelihood of
 - **hospitalization,**
 - **physician visits,**
 - **asthma drug costs**
 - **use of short-acting beta agonists**
 - **use of oral corticosteroids**

Upsurge in AR in the past 50 year

- **Increased incidence due to changes in:**

- Environment**

- Diet**

- Microbiome**

Natural history of allergic rhinitis

- The incidence of allergic sensitization and allergic (mostly seasonal) rhinitis is **very low in the first two years**.
- Data suggest that very few infants and toddlers develop allergic-type symptoms during any pollen season **before the third year of life**.
- **2 years of environmental allergen exposure** seem to be needed before allergic sensitization can be observed by specific serum IgE measurement.
- The percentage of new cases with seasonal AR increases between the ages of 3 and 12 years at a constant rate of **~2% per year**.

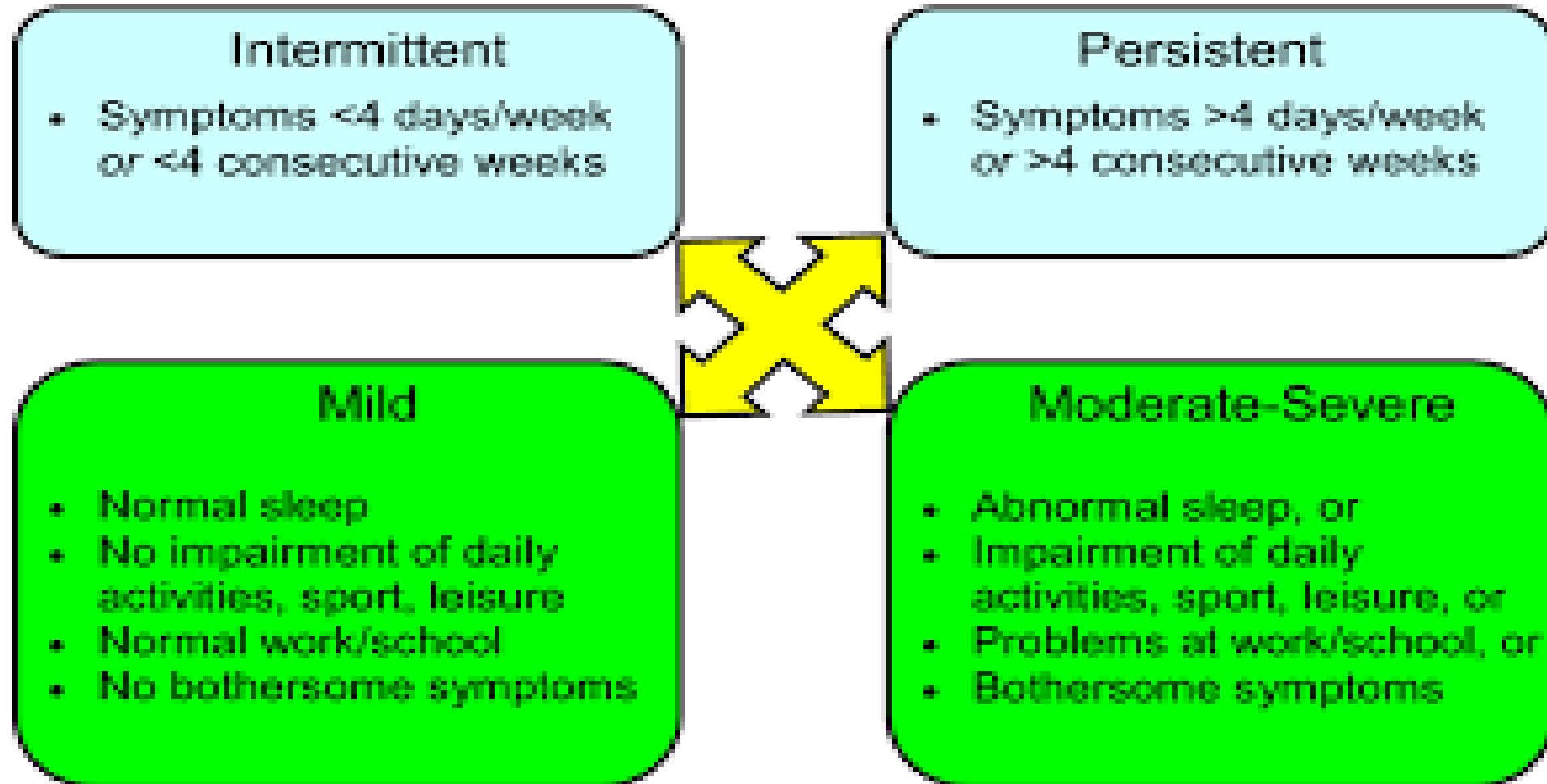
Risk factors

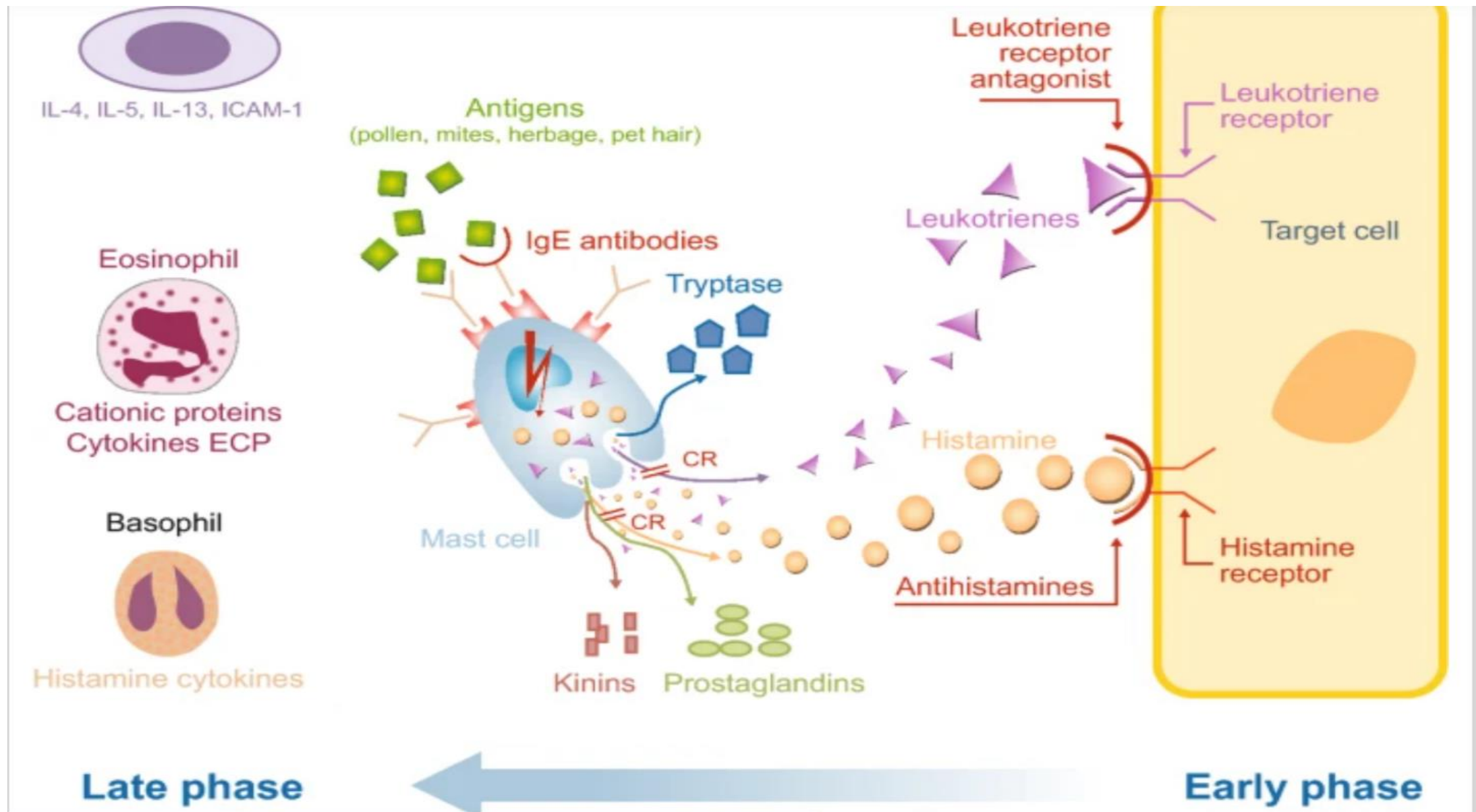
- **Family history of atopy**
- **Female gender**
- **IgE > 100 before age 6**
- **Early life exposures**
- **Maternal smoking**
- **Heavy exposure to indoor allergens**
- **Particulate air pollution**
- **C/S in children with parental history of allergies**
- **Elevated antickroach and antimouse IgE between the age 2 and 3**
- **Reduced diversity of the intestinal microbiota**
- **≥ 3 rhinorrhea episode in the first year of life \rightarrow AR in 7 ys of old**

Decreased risk

- Increased number of siblings
- Grass pollen counts
- Farm environment
- Mediterranean diet

AR Etiology & Classification





Diagnosis

- AR is diagnosed by:
 - a detailed history
 - supported by examination of the patient as a whole
 - examination of the nose
 - allergen-specific IgE.

History

- The **frequency of common colds in childhood** means that AR may be misdiagnosed or ignored!
- Where and when nasal symptoms occur
- Exacerbating factors
- Relieving factors
- Other symptoms particularly those of asthma, eczema, ENT problems and food allergy
- Any effects on sleep and quality of life
- A history or family history of allergic disease and/or immune problems
- A review of treatments taken and their efficacy

- Accompanying eye symptoms in more than 60% of children
- Often poorly recognized as allergic
- Between one and two thirds of them have severe persistent symptoms, affecting their daily life.

BOX 1 | Rhinitis symptoms are nasal running, blocking, itching, sneezing, all of which are common in children due to viral colds. This Box gives the clues to an AR diagnosis.

Rhinitis may be allergic if

- The eyes are involved
- Itching is noticeable- child gives allergic salute, has allergic crease
- Exposure to a known allergen reliably causes symptoms
- Personal or family history of other allergic diseases
- Some children present with a comorbidity (asthma, atopic eczema, rhinosinusitis, hearing difficulties, sleep disturbance, behavior problems, pollen food syndrome). Always ask about nasal symptoms in such patients
- Always ask about asthma in children with rhinitis and vice-versa.

use only

Symptoms suggestive for AR (when related to allergen exposure)³

Symptoms LESS suggestive for AR³

2 or more of the following symptoms for > 1 hour on most days:

- Runny nose
- Sneezing, especially paroxysmal
- Nasal obstruction
- Nasal itch
- Ocular symptoms like itch, redness or tearing

- Unilateral symptoms
- Discoloured secretions
- Facial or nasal pain
- Recurrent epistaxis
- Smell disorder (anosmia)
- Posterior rhinorrhoea (post nasal drip) with thickened mucus
- Isolated rhinorrhoea



BOX 2 | Red Flags- for specialist attention.

- Children with unilateral symptoms, severe nasal obstruction +/- sleep apnoea
- Children under 2 years and those with a history of rhinitis symptoms present continuously since birth (34, 35)
- Children with nasal polyps
- Those refractory to medical management.

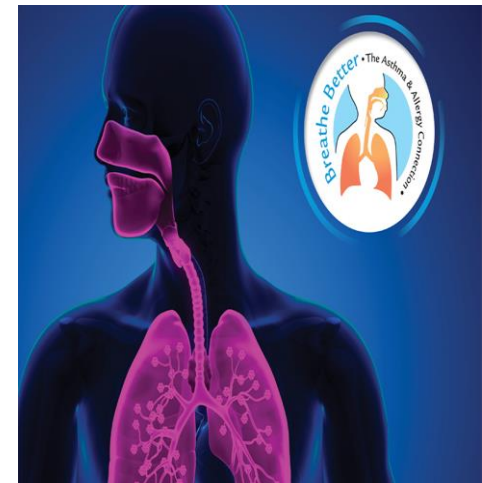
Clinical Manifestations



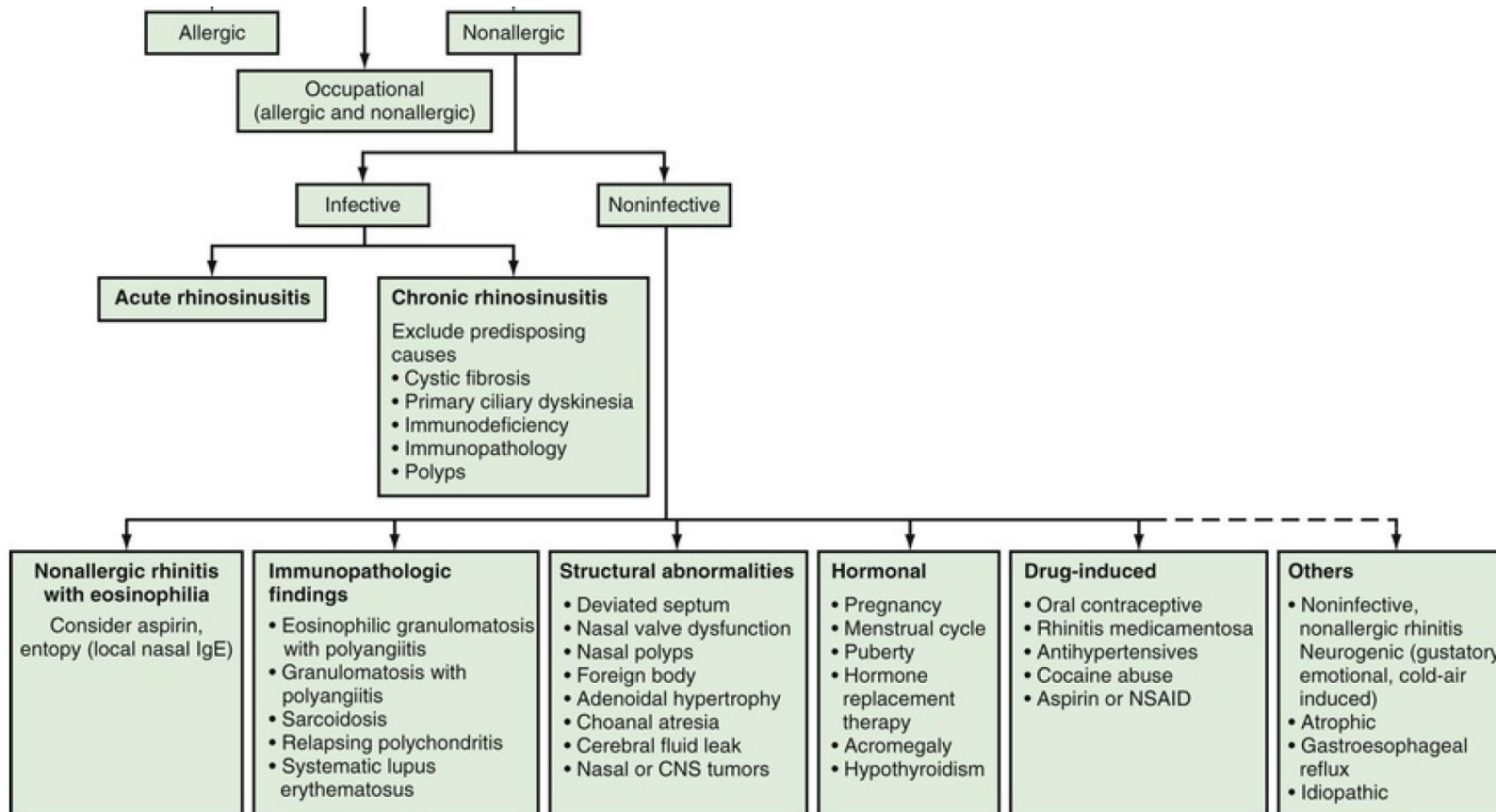


AR Comorbidities

- Many have eczema in infancy.
- About half of the patients with severe persistent AR have wheezing episodes.
- In young children, as in adults, a progression from rhinitis to wheezing can be frequently found and underlies the importance of treating both sides of allergic inflammation to achieve disease control.
- Rhinitis in childhood is a strong predictor for adolescent- and adult-onset asthma.



Differential Diagnosis Algorithm



Lab tests

- Skin tests
 - Inexpensive
 - Sensitive
 - Minimal risk and discomfort
- Serum immunoassays for sIgE
 - Dermatographism or extensive dermatitis
 - Mast cell interfering medications
 - High risk for anaphylaxis
 - No optimal cooperation

Treatment

- **Mild, intermittent (primarily rhinorrhea or sneezing):**
 - **Non-sedating oral or topical intranasal antihistamine – as needed**
- **Significant component of nasal congestion:**
 - **Intranasal steroid, antihistamine-decongestant pill, intranasal antihistamine**
- **Persistent symptoms, particularly congestion:**
 - **Intranasal steroids regularly**

- **Moderate to severe symptoms: Intranasal steroid**

- Reevaluation after 2 weeks to assess response to therapy

- excellent response: considering anticipated exposures and treating them accordingly

- Partial response: identifying residual complains and targeting them with specific medications

- ✓ Significant eye symptoms: intraocular antihistamine as needed

- ✓ Significant eye redness: referral to ophthalmologist

- ✓ Residual nasal congestion: addition of an intranasal antihistamine

✓ Persistent rhinorrhea: ipratropium bromide

• No improvement after maximal medical therapy:

- Reconsidering the diagnosis

- Sinus CT

- Nasal endoscopy

• Refractory allergic rhinitis unresponsive to the foregoing treatments

- Allergen Immunotherapy

Allergic rhinitis clinical presentation

Two or more nasal symptoms suggestive of allergic rhinitis

- Difficult-to-treat AR
- Failure of previous treatment (step 1)

- **Severe AR**
defined by uncontrolled symptoms despite previous treatment and after confirmation of diagnosis, medication adherence, co-morbidities managed
- Failure of previous treatment (step 2)

AR patient aiming for sustained effects

Patient education on disease and therapy adherence

Avoid irritants and allergens | Advise saline nasal sprays/douching

FIRST LINE CARE
Pharmacist – General Practitioner

SPECIALIST CARE
Specialist

Nasal corticosteroid
and/or
Antihistamine (anti-H1)
oral non-sedating
or
nasal

VAS \geq 5

Uncontrolled

(*) Add-on therapies

- Isolated watery rhinorrhoea: Ipratropium
- Rhinorrhoea in asthmatics: Leukotriene receptor antagonist
- Ocular itch/skin rash: Oral non-sedating anti-H1
- Ocular symptoms: Intra-ocular anti-H1 or Cromones
- Sudden onset nasal blockage: nasal / oral decongestant \leq 7 days

Confirm diagnosis

Check medication adherence
Evaluate co-morbidities

Fixed nasal corticosteroid + nasal anti-H1 (*)
>
Nasal corticosteroid
=
Combination nasal corticosteroid + oral anti-H1

VAS \geq 5

Uncontrolled

Re-evaluate diagnosis

Allergen Immunotherapy (moderate-severe AR)
and/or
Oral corticosteroid (short course)
and/or
Surgery (severe nasal obstruction)
and/or
Add-on therapies (*)

Allergen Immunotherapy (AR due to i.e. pollen or house dust mite)

Which patients can benefit from AIT?⁵

AIT should be considered if ALL are present:

- ❑ Uncontrolled moderate-to-severe symptoms of AR +/- conjunctivitis, on exposure to clinically relevant allergens
- ❑ Confirmation of IgE sensitisation to clinically relevant allergens (via skin prick test or serum specific IgE)
- ❑ Inadequate control of symptoms despite reliever medication and allergen avoidance measures and/or unacceptable adverse effects of medication

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