

**GLORIA** Global Resources  
in Allergy™

**ARIA**

(Allergic Rhinitis and its Impact on Asthma)

**GLORIA**

(Global Resources In Allergy)

**ATBP**

(at iba pa)

Zenaides T. Wi, M.D, FPCS, FPSOHNS

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ORGANIZATION - IACI

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## *CLINICAL GUIDELINES IN ALLERGIC RHINITIS*

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*Some thoughts:*

*“ Clinical guidelines are systematically developed statements designed to help practitioners and patients make decisions about appropriate health care for specific circumstances”...*

*“ the goal of guidelines is their wide dissemination within the medical community in order to improve patient’s care...”*

*... Jean Bousquet, EAACI, Brussels, July 1999*

# ***CLINICAL GUIDELINES IN ALLERGIC RHINITIS***

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- ◆ **Guidelines in Making Guidelines**
- ◆ **Evidence Based Medicine VS Expert Opinion**
- ◆ **Common Sense**
- ◆ **Cochrane Collaboration**
- ◆ **Narrow the Gap between Clinical Research and Clinical Practice**

# CLINICAL GUIDELINES IN ALLERGIC RHINITIS

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*Guidelines should be:*

- ◆ ***Simple***
- ◆ ***Adapted to clinical practice and drug availability in various countries***
- ◆ ***Should not represent a yardstick rather a help for physicians*** ***but***



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Let me see...it all  
began this way...



# It all began this way.....

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- ◆ Before 1994- pocket studies on Rhinitis, Sinusitis, etc.
- ◆ 1994- International Rhinitis Management Working Group presented the International Consensus Report on the Diagnosis and Management Rhinitis
- ◆ 1995 to the present- start of serious and widespread discussions/studies on the relationship of the upper and lower airways: Rhinitis and Asthma, United Airways, One Airway One Disease...etc
- ◆ 2000- EAACI Consensus Statement on the Treatment of Allergic Rhinitis
- ◆ 2001- ARIA (Allergic Rhinitis and Its Impact on Asthma), same group who made the 2000 EAACI Consensus agreed on the ARIA.
- ◆ 2003- GLORIA (Global Resources in Allergy) WAO (World Allergy Org.) initiated an educational program to disseminate worldwide the ARIA and other allergy issues.
- ◆ September, 2003, Vancouver World Allergy Org. Convention- The Impact of Upper Airway Allergic Inflammation on Asthma. Talks on Allergic Rhinitis and Sinusitis in relation to Asthma.

# What will I share with you today?

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- ◆ Discussion on History and Allergic Rhinitis
- ◆ ARIA and GLORIA
- ◆ DESLORATADINE (AERIUS)  
MOMETASONE (NASONEX)

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*Heto na si GLORIA!*



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## Section 1: Allergic Rhinitis

an educational program of:

**WAO**  
WORLD ALLERGY  
ORGANIZATION - IACI

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# GLORIA resource documents

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- ◆ Allergic Rhinitis and Its Impact on Asthma (ARIA): *JACI 2001:56: 813-824*
- ◆ Contemporary Approaches to Ocular Allergy Management: *American College of Allergy, Asthma and Immunology, 1998.*
- ◆ Consensus Statement on the Treatment of Allergic Rhinitis. *Allergy 2000: 55: 116-134*
- ◆ World Allergy Forum program series: *WAO 2000-2003*

# Allergic rhinitis definition: ARIA

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- ◆ Allergic rhinitis is clinically defined as a symptomatic disorder of the nose, induced after allergen exposure, by an IgE mediated inflammation of the nasal membranes.

# Major symptoms of allergic rhinitis: ARIA

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- ◆ Rhinorrhoea
- ◆ Nasal Obstruction
- ◆ Nasal Itching
- ◆ Sneezing

# Allergic rhinitis: Relationship to allergic conjunctivitis

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- ◆ 42% of patients with allergic rhinitis experience symptoms of allergic conjunctivitis
- ◆ Conjunctivitis is a typical feature of the patient with intermittent symptoms due to seasonal pollens

# Allergic Rhinitis: Co-morbidity sinusitis

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- ◆ Strong association (>50%) between sinusitis and allergic rhinitis in children and adults
- ◆ Otitis media is a common co-morbidity

# Allergic rhinitis – relationship to asthma: ARIA

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- ◆ Most patients with allergic and non-allergic asthma have rhinitis
- ◆ Many patients with rhinitis have asthma
- ◆ Allergic rhinitis is associated with and also constitutes a risk factor for asthma
- ◆ Many patients with allergic rhinitis have increased non-specific bronchial hyperreactivity

# Classifications of allergic rhinitis

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- ◆ Intermittent (*seasonal - acute - occasional*)
  - Occasional symptoms lasting <four days per week or  $\leq$  four weeks
- ◆ Persistent (*perennial - chronic - long duration*)
  - Symptoms lasting > four days per week and > four weeks

# New classification of allergic rhinitis: Severity - ARIA

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## ◆ Mild

- Normal sleep
- Normal daily activities, sport, leisure
- Normal work and school
- No troublesome symptoms

# New classification of allergic rhinitis: Severity - ARIA

---

- ◆ Moderate - Severe
  - Abnormal sleep
  - Impairment of daily activities, sport, leisure
  - Problems caused at work or school
  - Troublesome symptoms



# ARIA Classification

## Intermittent

- . < 4 days per week
- . or < 4 weeks

## Persistent

- .  $\geq$  4 days per week
- . and  $\geq$  4 weeks



## Mild

- normal sleep
- & no impairment of daily activities, sport, leisure
- & normal work and school
- & no troublesome symptoms

in untreated patients

## Moderate-severe

- one or more items*
- ◆ abnormal sleep
- ◆ impairment of daily activities, sport, leisure
- ◆ abnormal work and school
- ◆ troublesome symptoms

# Differential diagnosis of rhinitis - 1

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- ◆ Allergic
- ◆ Infectious: **Viral, bacterial, fungal**
- ◆ Non-infectious, non-allergic rhinitis
- ◆ Drug-induced: **Aspirin, other medications**
- ◆ Occupational: **May be both allergic or non-allergic**
- ◆ Hormonal: **Puberty, pregnancy, menstruation, endocrine disorders**
- ◆ Other causes: **Foods, gustatory, irritants, emotion, Non-Allergic Rhinitis with Eosinophilia Syndrome (NARES), gastro-oesophageal reflux, atrophic**

# Differential diagnosis of rhinitis - 2

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- ◆ Vasomotor rhinitis - persistent non-allergic rhinitis; vascular and/or neurological dysfunction of nasal mucosa
  - Females (90%), 40-60 years
  - Nasal congestion and post-nasal drip in response to change in temperature, humidity, barometric pressure; smells such as perfume, cigarette smoke, paint and ammonia; emotional stress

# Differential diagnosis of rhinitis - 3

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- ◆ Polyps
- ◆ Mucociliary Defects
- ◆ Cerebrospinal Rhinorrhoea
- ◆ Tumors - **Benign, Malignant**
- ◆ Mechanical - **Anatomical abnormalities, Foreign Body**
- ◆ Granulomas - **Sarcoid, Infectious, Wegener's, Midline Granuloma**

# Concomitant pathology: Allergic and non-allergic rhinitis

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- ◆ About 40% of patients have pure allergic rhinitis
- ◆ About 25% have pure non-allergic rhinitis
- ◆ About 35% have mixed rhinitis - a mixture of both diseases

# Epidemiology of allergic rhinitis: Children

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- ◆ Prevalence of rhinitis symptoms, International Study of Asthma and Allergies in Childhood *Asher et al, 1995*:
  - between 0.8% and 14.95% in 6-7 year olds
  - between 1.4% and 39.7% in 13-14 year olds
- ◆ Low prevalence: Indonesia, Georgia, Greece
- ◆ High prevalence: Australia, UK and Latin America

# Epidemiology of allergic rhinitis: Adults

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- ◆ No equivalent to ISAAC study
- ◆ National surveys show prevalence rates between 5.9% (France) and 29% (United Kingdom), mean 16%
- ◆ Persistent (*perennial*) rhinitis more common in adults than children

# Globally important allergens

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- ◆ House dust mites
- ◆ Grass, tree and weed pollen
- ◆ Pets
- ◆ Cockroaches
- ◆ Molds

# Diagnosis of allergic rhinitis: Essential

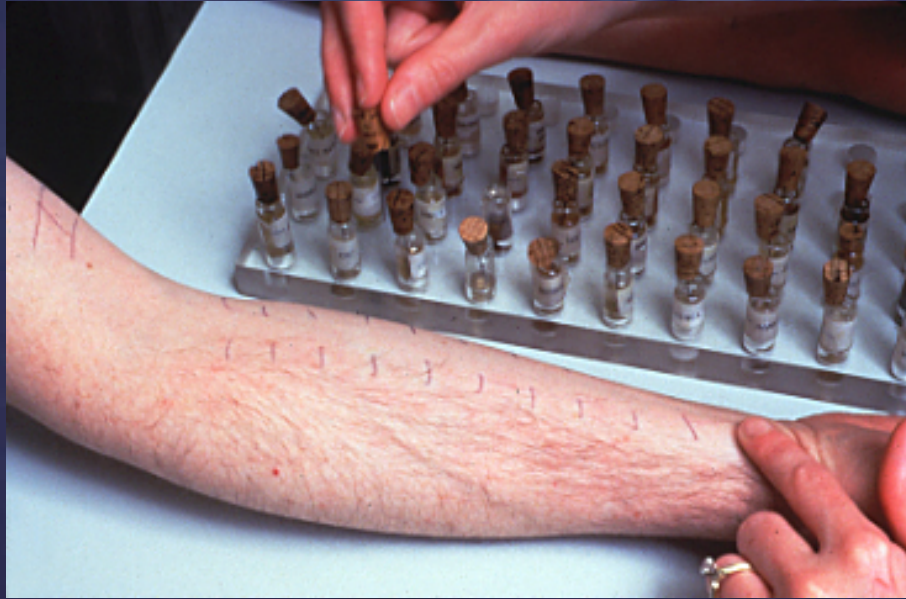
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- ◆ Detailed personal and family allergic history
- ◆ Intranasal examination – anterior rhinoscopy
- ◆ History of eye symptoms
- ◆ Allergy skin tests performed by allergist, eg, skin tests  
and/or
- ◆ Measurement of allergen specific IgE antibody in serum (Radioallergosorbent tests)

# Allergy skin prick testing

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- ◆ Skin prick test / positive result



# Radio-allergosorbent tests

CAP RAST scores indicate specific IgE levels where 0-absent (<0.35 KUa/1), 1-low (0.35-0.7 KUa/1), 2-moderate (0.7-3.5 KUa/1), 3-high (3.5-17.5KUa/1), 4-very high (17.5-50 KUa/1), 5-very high (50-100 KUa/1), 6-very high (>100 KUa/1).

REQUESTED TESTS:		RESULTS	
Method: CAP RAST FEIA		Class	Concentration
f--	<b>Grass Pollen mix</b>	<b>2</b>	<b>1.04 KUa/1</b>
f--	<b><i>D. pteronyssinus</i> (mite)</b>	<b>3</b>	<b>4.19 KUa/1</b>
f--	<b><i>A. fumigatus</i> (mold)</b>	<b>0</b>	<b>&lt;0.35 KUa/1</b>
f-	<b>Cat</b>	<b>3</b>	<b>7.82 KUa/1</b>

# Diagnosis of allergic rhinitis: Additional tests

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- ◆ Nasal endoscopy
- ◆ Nasal secretions/scrapings for cytology (done rarely)
- ◆ Nasal challenge test with allergen, including rhinomanometry
- ◆ CT scan

# Allergic Rhinitis: Additional investigations

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- ◆ Strong association (>50%) between sinusitis and allergic rhinitis in children and adults
- ◆ If sinusitis history present – fever, headache, facial pain, mucopurulent discharge, cough and fatigue – consider CT scan of sinuses

# Signs and symptoms of rhinitis vs. sinusitis

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	<i>Rhinitis</i>	<i>Sinusitis</i>
Congestion	++++	++++
Sneezing	+++	+
Itching	+++	-
Rhinorrhea-clear	++++	+
Rhinorrhea-purulent	+	++++
Post-nasal drip	+ or ++	++++
Headache	+	+++
Facial pressure	+	++ or ++++
Anosmia, Hyposmia	+ or ++	+++ or ++++
Cough	+	+++
Throat clearing	+	+++
Fever	- or +	++

# Allergic rhinitis: Additional investigations

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- ◆ Additional investigations recommended:
  - History of asthma
  - Chest examination
  - Lung function before and after bronchodilator
  - Tests for non-specific bronchial hyperreactivity

# Immunopathology of allergic rhinitis: Early phase reaction

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- ◆ Mast cell degranulation, release of histamine, leukotriene C4/D4, platelet activating factor, prostaglandin D2, give rise to acute symptoms:
- ◆ Nasal Itch
- ◆ Sneezing
- ◆ Acute Rhinorrhoea

# Immunopathology of allergic rhinitis: Precursors of late phase reaction

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- ◆ Mast cell secretion of cytokines and chemokines
- ◆ Stimulation of endothelial cells by histamine, leukotrienes and PAF to secrete cytokines and chemokines
- ◆ Activation of counter-ligands on endothelial cells to interact with blood cells which roll, adhere and then transmigrate

# Immunopathology of allergic rhinitis: Late phase reaction

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- ◆ Sub-epithelial cell accumulation of CD4(+), Th2 lymphocytes, monocytes, eosinophils and basophils which become activated by the cytokine/chemokine network as well as by antigen stimulation of high and low affinity IgE receptors

# Immunopathology of allergic rhinitis: Histamine

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- ◆ Pre-formed mediator
- ◆ Released from activated mast cells
- ◆ Major mediator in early phase reaction
- ◆ Causes sneezing, itching, rhinorrhoea, nasal obstruction
- ◆ Pro-inflammatory activity

# Immunopathology of allergic rhinitis: Leukotrienes

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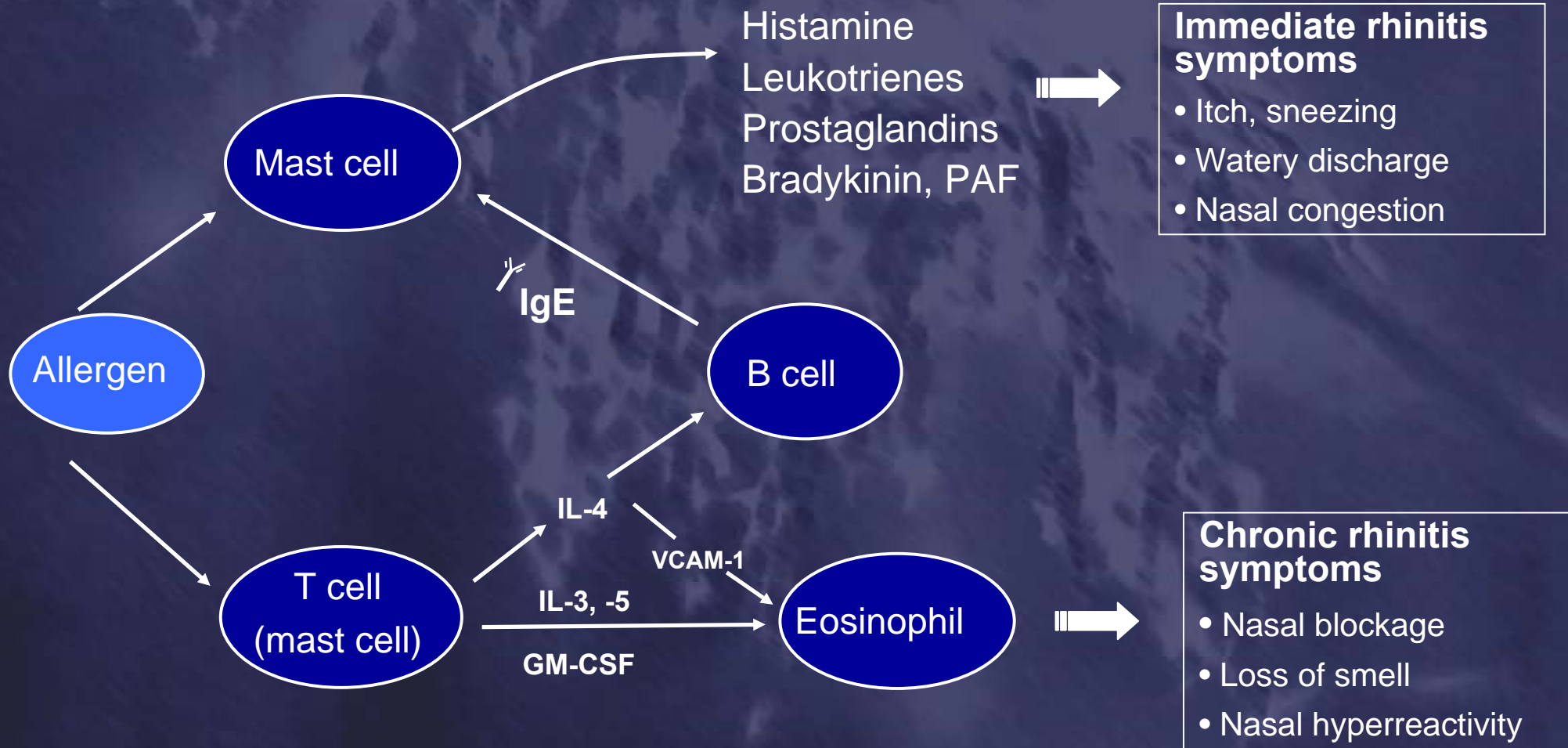
- ◆ Early generated mediators
- ◆ Participate in both immediate and late reactions
- ◆ Cause nasal obstruction, mucus secretion, vasodilation, inflammatory cell recruitment

# Immunopathology of allergic rhinitis: Minimal persistent inflammation

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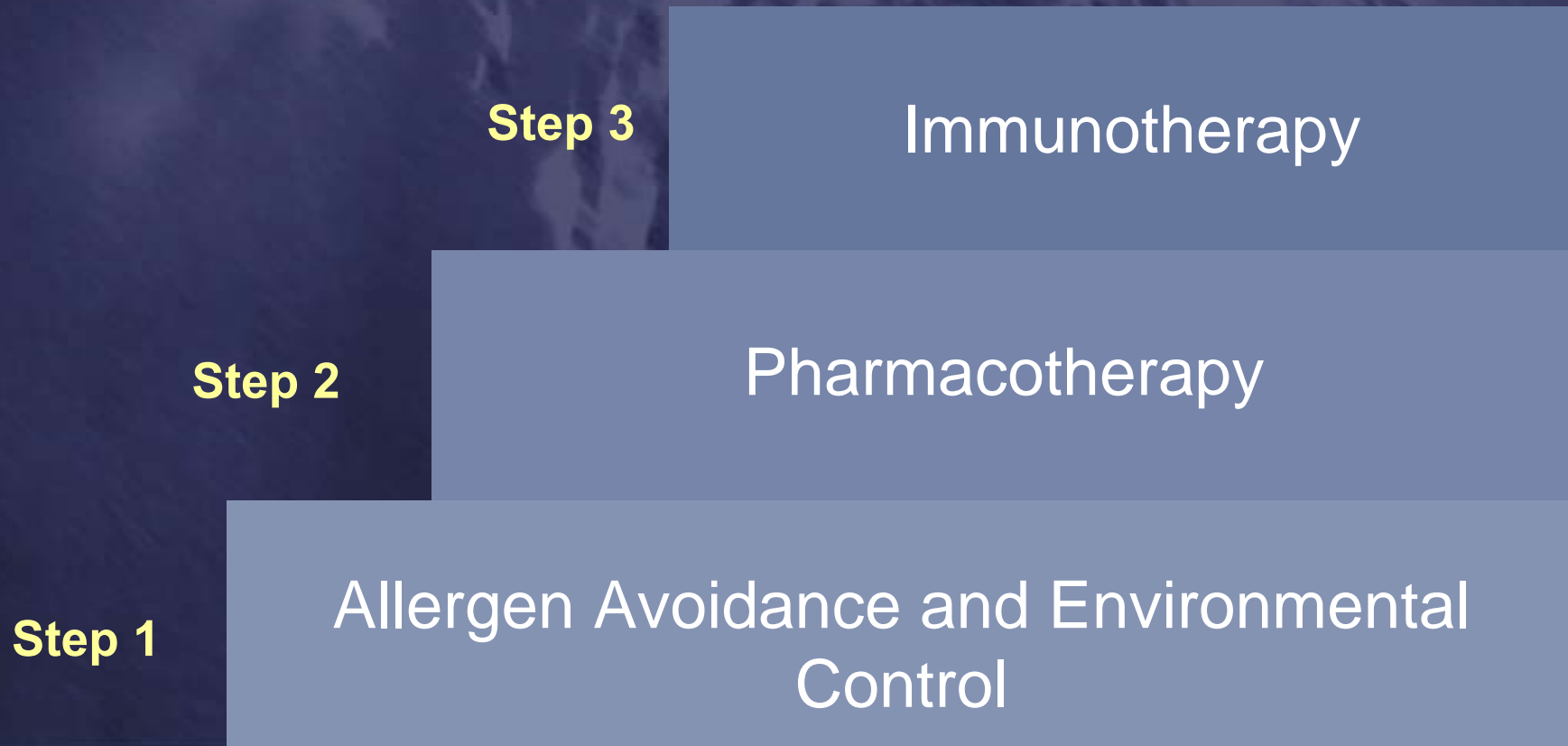
- ◆ Minimal persistent inflammation is present even in the absence of symptoms when patients are exposed to pollen or perennial allergens

# Mediators and symptoms in allergic rhinitis



# Step-wise management of allergic rhinitis

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# Management of allergic rhinitis: Allergen avoidance and environmental control

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## ◆ House dust mites:

- Provide adequate ventilation to decrease humidity
- Wash bedding regularly at 60°C
- Encase pillow, mattress and quilt in allergen impermeable covers
- Use vacuum cleaner with HEPA filter (when available)
- Dispose of feather bedding
- Replace carpets with linoleum or wooden floors
- Remove curtains, pets and stuffed toys from bedroom



# Management of allergic rhinitis: Allergen avoidance and environmental control

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## ◆ Pollen

- Very difficult to avoid!
- Remain indoors with windows closed at peak pollen times
- Wear sunglasses
- Use air-conditioning, where possible
- Install car pollen filter



# Management of allergic rhinitis: Allergen avoidance and environmental control

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## ◆ Pet Allergens

- Exclude pets from bedrooms and, where possible, from home
- Vacuum carpets, mattresses and upholstery regularly
- Wash pets regularly



# Management of allergic rhinitis: Allergen avoidance and environmental control

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## ◆ Cockroach Allergens

- Eradicate cockroaches with appropriate insecticide
- Eliminate dampness, cracks in floors, ceilings, cover food; wash surfaces, floors, fabrics to remove allergen



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# Management of allergic rhinitis: Allergen avoidance and environmental control

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- ◆ **Molds**
  - **Ensure dry housing**
  - **Use ammonia to remove mold from bathrooms and other wet spaces**

# Pharmacotherapy of allergic rhinitis: Topical antihistamines

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- ◆ Azelastine and levocabastine
  - Rapid onset of action (15 minutes)
  - Twice daily administration
  - Recommended for organ-limited disease
  - May be used as needed continuously
  - Useful in non-allergic rhinitis as well
  - Good safety profile

# Pharmacotherapy of allergic rhinitis: First generation oral antihistamines

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- ◆ Chlorpheniramine, diphenhydramine, promethazine, triprolidine
- ◆ Use limited by sedative and anticholinergic effects

# Pharmacotherapy of allergic rhinitis

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Properties required of ideal new generation oral antihistamines

- ◆ No sedation
- ◆ Once daily administration
- ◆ Rapid onset and 24 hour duration of action
- ◆ No interaction with drugs, foods, alcohol
- ◆ Additional anti-allergic effect

# Pharmacotherapy of allergic rhinitis: New generation oral antihistamines

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- ◆ Acrivastine, azelastine, cetirizine, desloratadine, ebastine, epinastin, fexofenadine, ketotifen, levocetirizine, loratadine, mizolastine
- ◆ First line treatment for intermittent or mild persistent allergic rhinitis

# Pharmacotherapy of allergic rhinitis: New generation antihistamines

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- ◆ Reduce sneezing, itching, runny nose
- ◆ Some, but less significant, effects on congestion
- ◆ Generally preferred by patients

# Pharmacotherapy of allergic rhinitis: Anti-allergic compounds

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- ◆ Disodium cromoglycate (DSCG) and nedocromil
  - Less effective than antihistamines
  - Require frequent administration: DSCG four times/day, nedocromil two times/day
  - Excellent safety profile for use in children and pregnancy

# Pharmacotherapy of allergic rhinitis: Anti-cholinergic compounds

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- ◆ Ipratropium bromide
  - Effective in controlling watery nasal discharge but not sneezing or obstruction.
  - Unwanted effects may include nasal dryness, irritation and burning.

# Pharmacotherapy of allergic rhinitis: Decongestants

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## ◆ Oral Tablets

- **Less effective than sprays: no rhinitis medicamentosa**
- **Effective when combined with an oral antihistamine**
- **Usually avoided in: children <1 year, pregnancy, hypertension, cardiopathy, prostatism, glaucoma**

# Pharmacotherapy of allergic rhinitis: Decongestants

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## ◆ Topical Sprays

- **Very effective in treating nasal obstruction**
- **Limit treatment to 3-10 days depending on physician recommendations**
- **Application for >10 days may lead to unwanted side effects, e.g., rhinitis medicamentosa**

# Pharmacotherapy of allergic rhinitis: Antileukotrienes

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- ◆ Less effective than inhaled corticosteroids and antihistamines
- ◆ May have additive effect with antihistamines
- ◆ Efficacy in aspirin-induced rhinitis and asthma
- ◆ Expensive, impractical for most

# Pharmacotherapy of allergic rhinitis: Topical corticosteroids

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- ◆ Beclomethasone dipropionate
- ◆ Budesonide
- ◆ Fluocortinbutyl
- ◆ Flunisolide
- ◆ Fluticasone propionate
- ◆ Mometasone furoate
- ◆ Triamcinolone acetonide

# Pharmacotherapy of allergic rhinitis: Topical corticosteroids

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- ◆ Most potent anti-inflammatory agents
- ◆ Effective in treatment of all nasal symptoms including obstruction
- ◆ Once or twice daily administration
- ◆ Superior to antihistamines for all nasal symptoms
- ◆ First line pharmacotherapy for moderate-severe persistent allergic rhinitis

# Pharmacotherapy of allergic rhinitis: Topical corticosteroids

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- ◆ Occasional unwanted effects
- ◆ Rarely affect HPA axis (some exceptions)
- ◆ Perforation of the nasal septum has been reported
- ◆ One study reports decrease in growth in children; other studies have not reported the same finding

# Pharmacotherapy of allergic rhinitis: Systemic corticosteroids

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- ◆ Short courses (< 5 days) can be prescribed for severe refractory symptoms
- ◆ Use with caution in children and in pregnancy if no alternative is available
- ◆ Concern regarding osteoporosis should limit use
- ◆ Intramuscular injections should be avoided

# Pharmacotherapy of allergic rhinitis: Injection allergen immunotherapy

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- ◆ Recommended for clinically relevant IgE mediated disease. May involve multiple allergens; usually restricted to two allergens in Europe.
- ◆ Risk-to-benefit ratio must be considered in all cases
- ◆ Highly effective in selected patients
- ◆ Injection immunotherapy for allergic rhinitis may prevent allergic asthma from developing

# Pharmacotherapy of allergic rhinitis: Injection allergen immunotherapy

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- ◆ Effective when optimally administered
- ◆ Standardised therapeutic vaccines favoured
- ◆ Subcutaneous immunotherapy alters natural course of disease
- ◆ Should be performed by trained personnel, and patients must be monitored after injection according to local guidelines

# Pharmacotherapy of allergic rhinitis: High-dose sublingual-swallow immunotherapy

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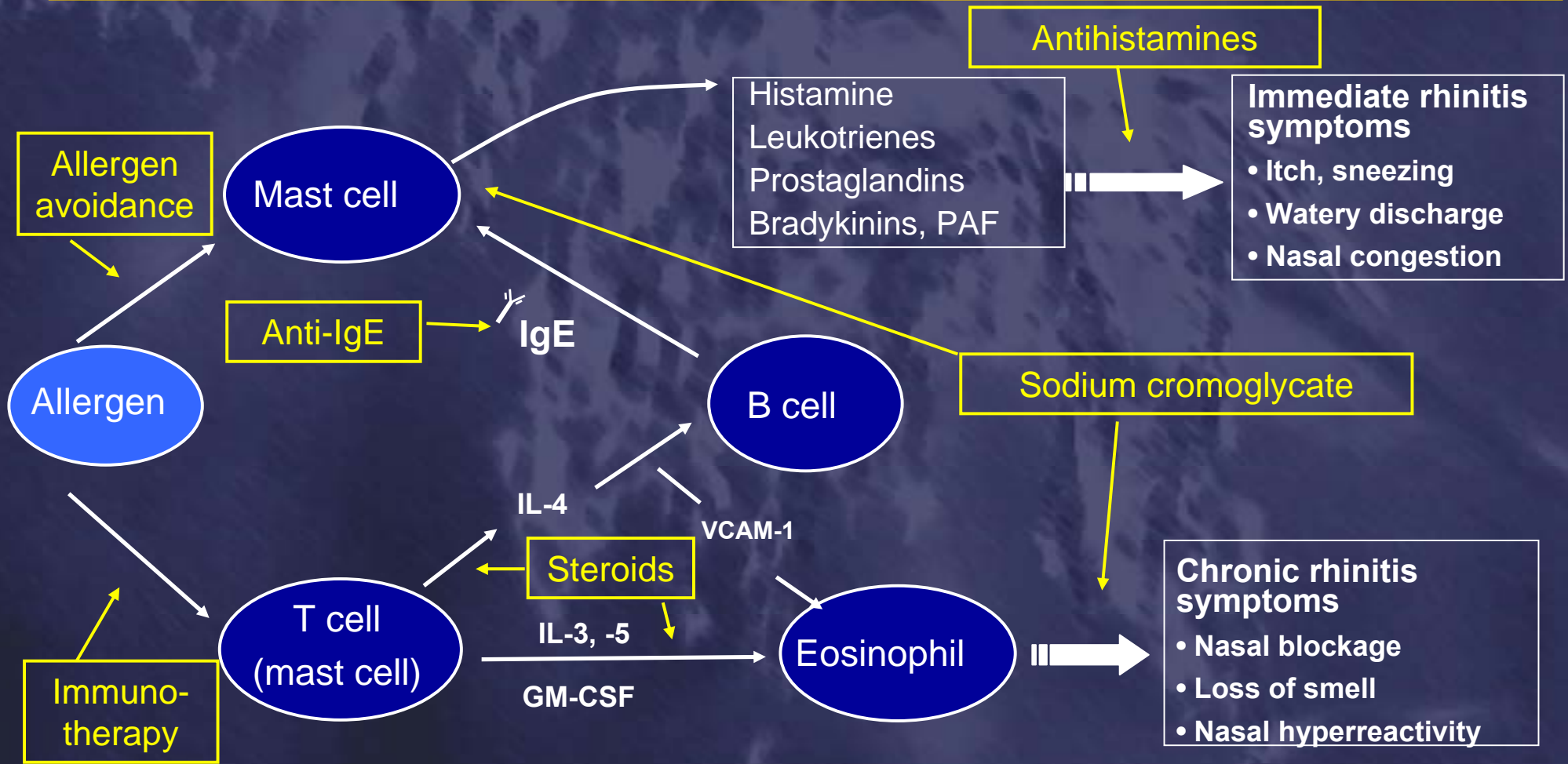
- ◆ Controlled studies show that high-dose sublingual swallow immunotherapy is a viable alternative to injection allergen immunotherapy for mild intermittent allergic disease.

# Evidence-based step-wise guidelines to manage pharmacotherapy of allergic rhinitis

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- ◆ A rational basis to commence and manage pharmacotherapy
- ◆ Relate clinical symptoms to underlying pathology
- ◆ Allergen avoidance and environmental control underpin all pharmacotherapy
- ◆ Clinical judgement determines starting point and appropriate combination of pharmacotherapies
- ◆ When symptoms improve, step down pharmacotherapy

# Modes and sites of action of allergic rhinitis pharmacotherapies



# Step-wise guidelines for pharmacotherapy of intermittent allergic rhinitis: Adults, mild

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Increase pharmacotherapy in a step-wise fashion until adequate control is achieved



# Step-wise guidelines for pharmacotherapy of intermittent allergic rhinitis: Adults, moderate-severe

---

Increase pharmacotherapy in a step-wise fashion until adequate control is achieved

## Step 1

Nasal corticosteroids,  
and/or  
oral/nasal antihistamines

## Step 2

Add further symptomatic  
treatment, eg, short  
course topical or oral  
decongestant

or

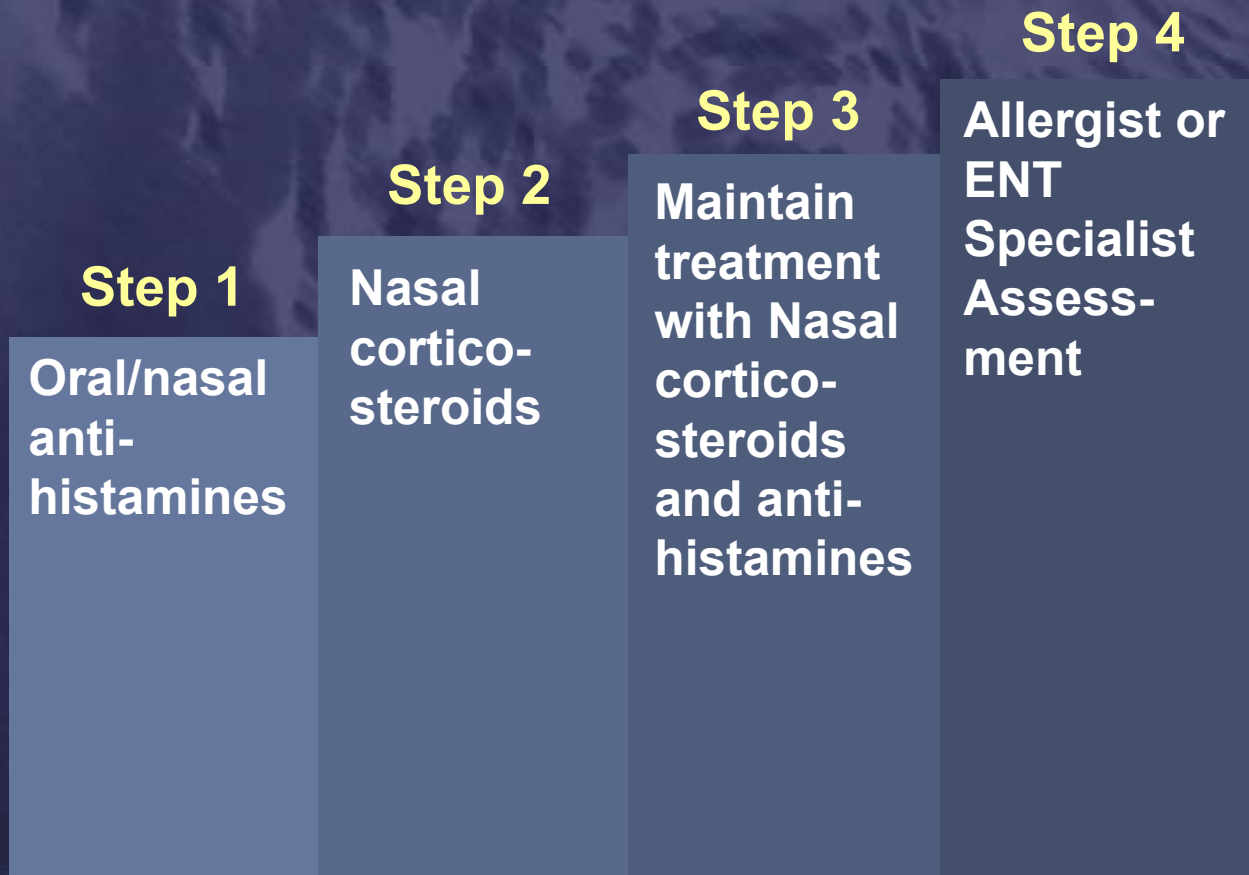
Short course of oral  
corticosteroids

or

Consider  
Immunotherapy

# Step-wise guidelines for pharmacotherapy of persistent allergic rhinitis: Adults, mild

Increase pharmacotherapy in a step-wise fashion until adequate control is achieved



# Step-wise guidelines for pharmacotherapy of persistent allergic rhinitis: Adults, moderate-severe

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In resistant cases where no other pathology is seen:

## Step 1

Resistant nasal blockage:

Decongestant/short course oral corticosteroids

Resistant rhinorrhoea:

Nasal ipratropium bromide and consider immunotherapy

## Step 2

Consider surgical intervention

eg, for deviated nasal septum,

unresponsive chronic sinusitis, allergic fungal sinusitis

# Step-wise guidelines for pharmacotherapy of persistent allergic rhinitis: Adults, moderate-severe

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Increase pharmacotherapy in a step-wise fashion until adequate control is achieved

## Step 1

Nasal corticosteroids  
(moderate disease)  
plus  
anti-histamines  
(severe disease)

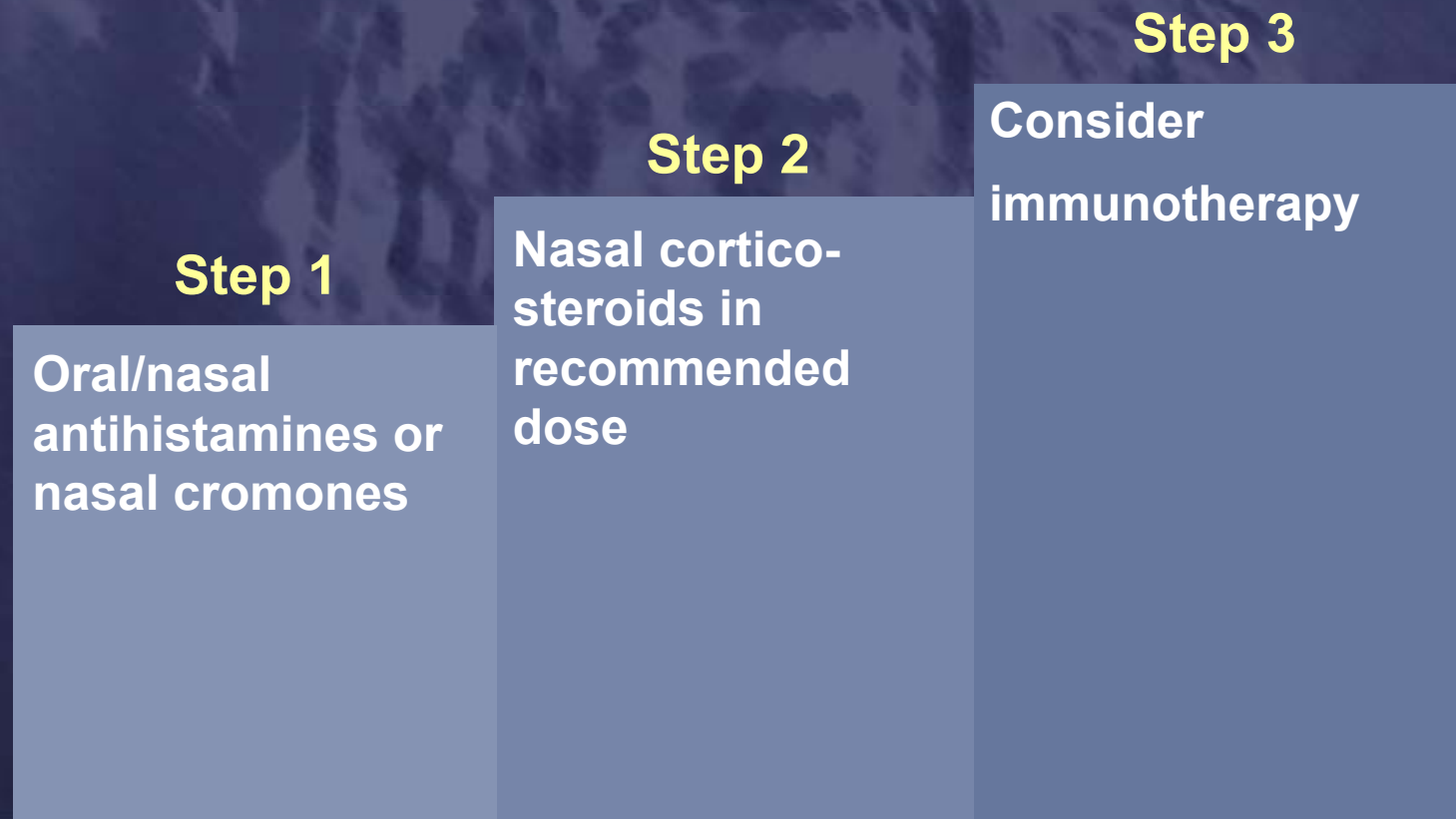
## Step 2

Further Examination by  
Allergist or ENT  
specialist

# Step-wise guidelines for pharmacotherapy of persistent allergic rhinitis: Children

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Increase pharmacotherapy in a step-wise fashion until adequate control is achieved





**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*



# Statement of evidence: Strength of evidence - **Shekelle et al, BMJ 1999**

- A directly based on randomised controlled trials and meta-analyses
- B evidence from at least one controlled study without randomisation *or* extrapolated recommendation from category A evidence
- C evidence from at least one other type of quasi-experimental study *or* extrapolated recommendation from category A or B evidence
- D evidence from expert committee reports *or* opinions *or* clinical experience of respected authorities, *or* both



# Strength of evidence for treatment of rhinitis

## ARIA

intervention		SAR		PAR	
		adult	children	adult	children
oral anti-H1		A	A	A	A
intranasal anti-H1		A	A	A	A
intranasal CS		A	A	A	A
intranasal cromone	A	A	A	A	A
anti-leukotriene		A	A		
subcutaneous SIT		A	A	A	A
sublingual / nasal SIT	A	A	A		
allergen avoidance		D	D	D	D



# Medications of allergic rhinitis

## ARIA

	sneezing	rhinorrhea obstruction	nasal itch	nasal symptoms	eye
<b>H1-antihistamines</b>					
oral	+++	+++	0 to +	+++	++
intranasal	++	+++	+	++	0
intraocular	0	0	0	0	+++
<b>Corticosteroids</b>	+++	+++	++	++	+
<b>Cromones</b>					
intranasal	+	+	+	+	0
intraocular	0	0	0	0	++
<b>Decongestants</b>					
intranasal	0	0	++	0	0
oral	0	0	+	0	0
<b>Anti-cholinergics</b>	0	+++	0	0	0
<b>Anti-leukotrienes</b>	+	++	++	?	++



# Mild intermittent rhinitis

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## ARIA

Options (not in preferred order)

- oral or intranasal anti-H1
- intranasal decongestants
- oral decongestants (not in children)



# Moderate-severe intermittent rhinitis

## Mild persistent rhinitis

### ARIA

Options (not in preferred order)

- oral or intranasal anti-H1
- oral anti-H1 + decongestant
- intranasal CS
- (chromones)

Patient should be re-assessed after 2-4 wks



# Moderate-severe persistent rhinitis

## ARIA

### Step-wise approach

- intranasal CS as a first line treatment
- if major blockage: add short course of oral CS or decongestant

### Re-assess after 2-4 weeks

- if symptoms present add:
  - oral anti-H1 ( $\pm$  decongestants)
  - ipratropium



# Conjunctivitis rhinitis

## ARIA

Options (not in preferred order)

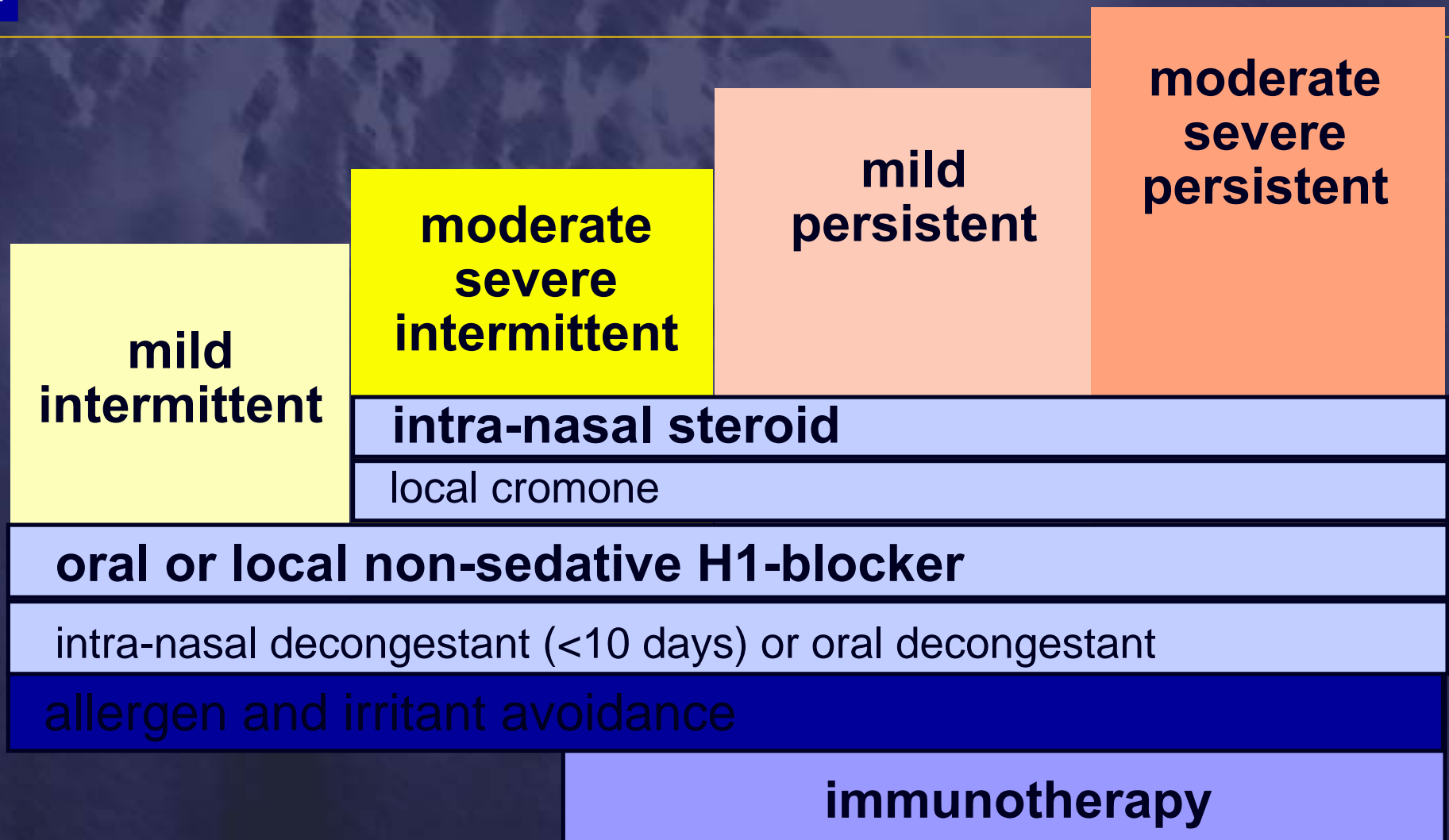
- oral or ocular anti-H1
- ocular chromones
- saline

Do not use ocular CS **without care and eye examination**



# Treatment of allergic rhinitis (ARIA)

## Allergic Rhinitis and its Impact on Asthma



# Pharmacotherapy of allergic disease: Future directions

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- ◆ >75% of allergic asthmatics have rhinitis
- ◆ >40% of allergic rhinitis patients have allergic conjunctivitis
- ◆ Humanized monoclonal antibodies against IgE, e.g. omalizumab are effective for treatment of moderate to severe allergic asthma. Such therapy:
  - **Decreases free IgE levels and down-regulates IgE receptors on basophils**

*(cont'd on next slide)*

# Pharmacotherapy of allergic disease: Future directions, cont'd.

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- Inhibits the late phase allergic reaction following allergen bronchial challenge
- Preliminary study indicates omalizumab is effective for nasal and ophthalmic symptoms of intermittent and persistent allergic rhinitis

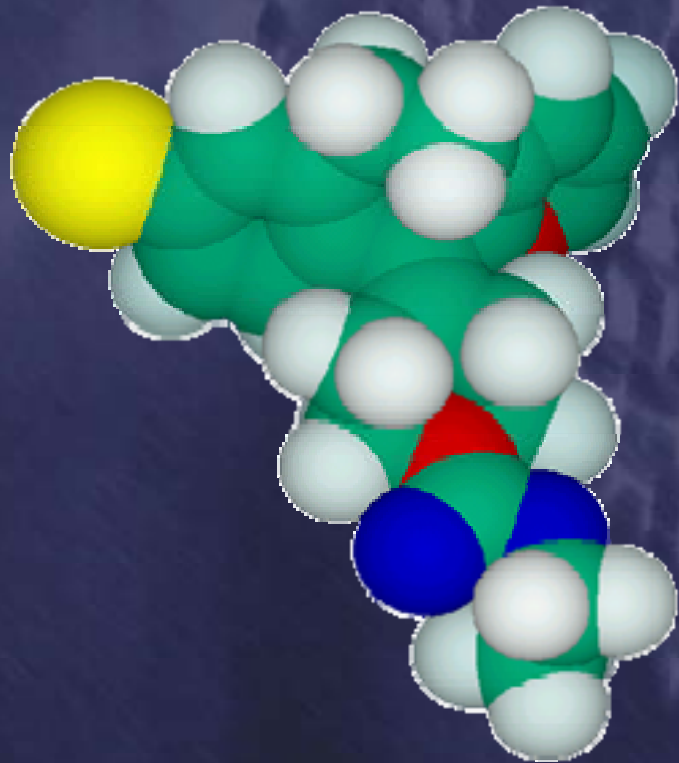
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***Ayos....commercial naman tayo.***

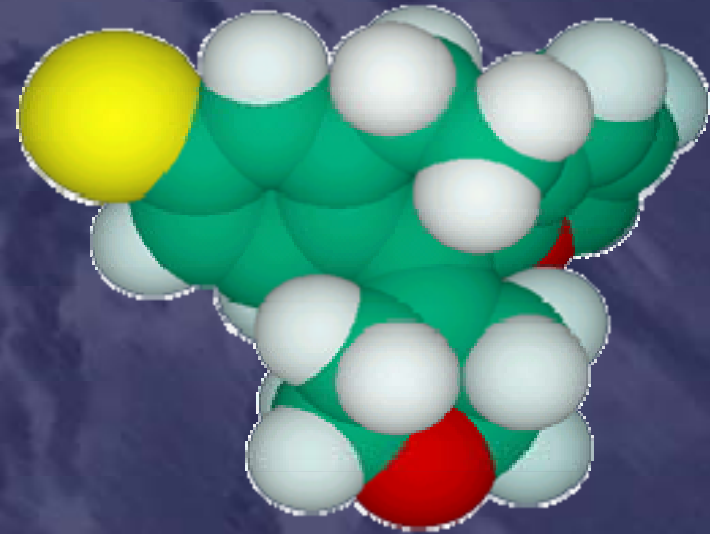


# Structures

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**Loratadine**



**Desloratadine**

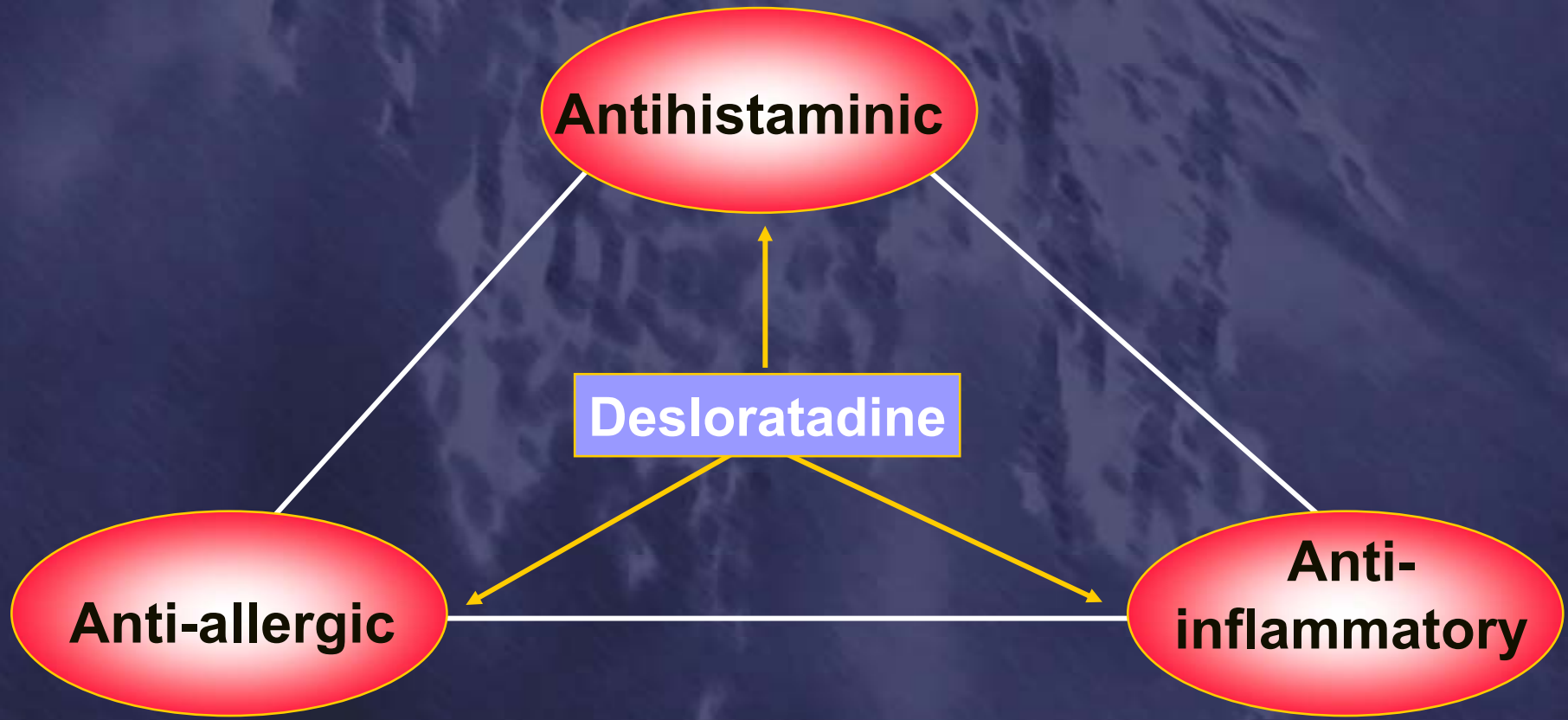
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◆ Desloratadine:

- Is a highly potent, selective H<sub>1</sub> antagonist
- Has a long dissociation time
  - $t_{1/2} > 6$  hours
- Shown to inhibit the release of pro-inflammatory mediators at clinically relevant concentrations

# Desloratadine Triple Mode of Action

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# AERIUS Efficacy in SAR

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## Efficacy End Points

### Nasal

- ◆ Rhinorrhea
- ◆ Nasal stuffiness
- ◆ Nasal congestion
- ◆ Nasal itching
- ◆ Sneezing

### Non-nasal

- ◆ Itching/burning eyes
- ◆ Tearing/watery eyes
- ◆ Red eyes
- ◆ Itching of ears or palate

# AERIUS SAR Studies

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- ◆ No serious adverse events
- ◆ Adverse events profile from SAR program

	<b>AERIUS</b>	<b>Placebo</b>
Headache	23%	23%
Somnolence	3%	2%
Dry mouth	4%	2%
Pharyngitis	5%	2%
Fatigue	3%	2%

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◆ So let us see the evolution...

- ARIA...
- AERIA...
- AERIAS...

And finally

- **AERIUS...Thank You.**

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in Allergy™

**ARIA**

(Allergic Rhinitis and its Impact on Asthma)

**GLORIA**

(Global Resources In Allergy)

**ATBP**

(at iba pa)

**Zenaides T. Wi, M.D, FPCS, FPSOHNS**

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