

Allergic Rhinitis and Its Impact on Asthma (ARIA)

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In collaboration with the World Health Organization



The ARIA initiative was developed

as a state-of-the-art for the specialist, the general practitioner and for health care workers:

- to **update** their knowledge of allergic rhinitis,
- to **highlight** the impact of allergic rhinitis on asthma,
- to provide an **evidence-based** documented revision on the **diagnosis** methods,
- to provide an evidence-based revision on the **treatments** available,
- to propose a **stepwise approach** to the management of the disease,
- to assess the **magnitude** of the problem in developing countries and to implement guidelines **(with IUATLD)**



ARIA program

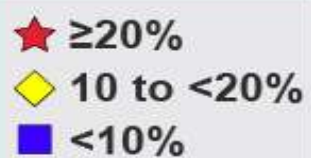
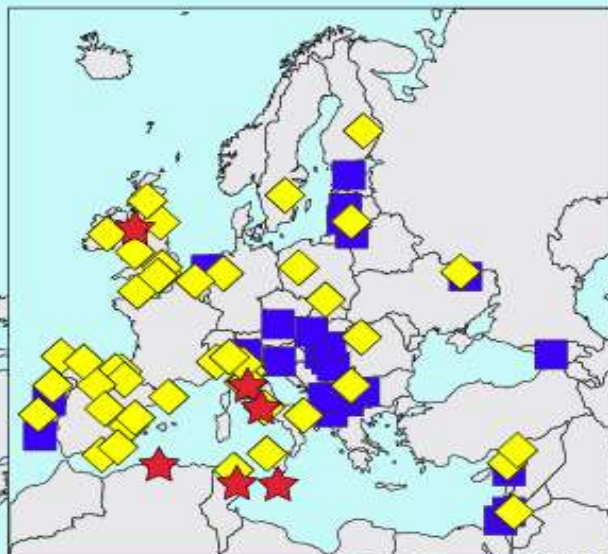
First phase:

- Development of evidence-based guidelines during a workshop held at WHO in December 1999 (**J Allergy Clin Immunol, suppl, Nov 2001**).
- Document has been endorsed by several allergy, respiratory, ENT and paediatric associations.



ISAAC Phase Three

Symptoms of Rhinoconjunctivitis 13-14 Year Age Group

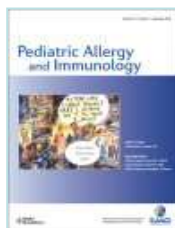


ISAAC Phase III in IRAN

Centre	N	R ever %	R last year %	HF ever %	RC last year %	RC Severe %
Rasht	3004	27.6	20.2	5.5	7.2	0.3
Tehran	3119	33.4	25.1	10.5	12.3	0.3
Total	6123	30.5	22.7	8.1	9.8	0.3

R, rhinitis
HF, hay fever
RC, rhinoconjunctivitis

Björstén B et al.2007

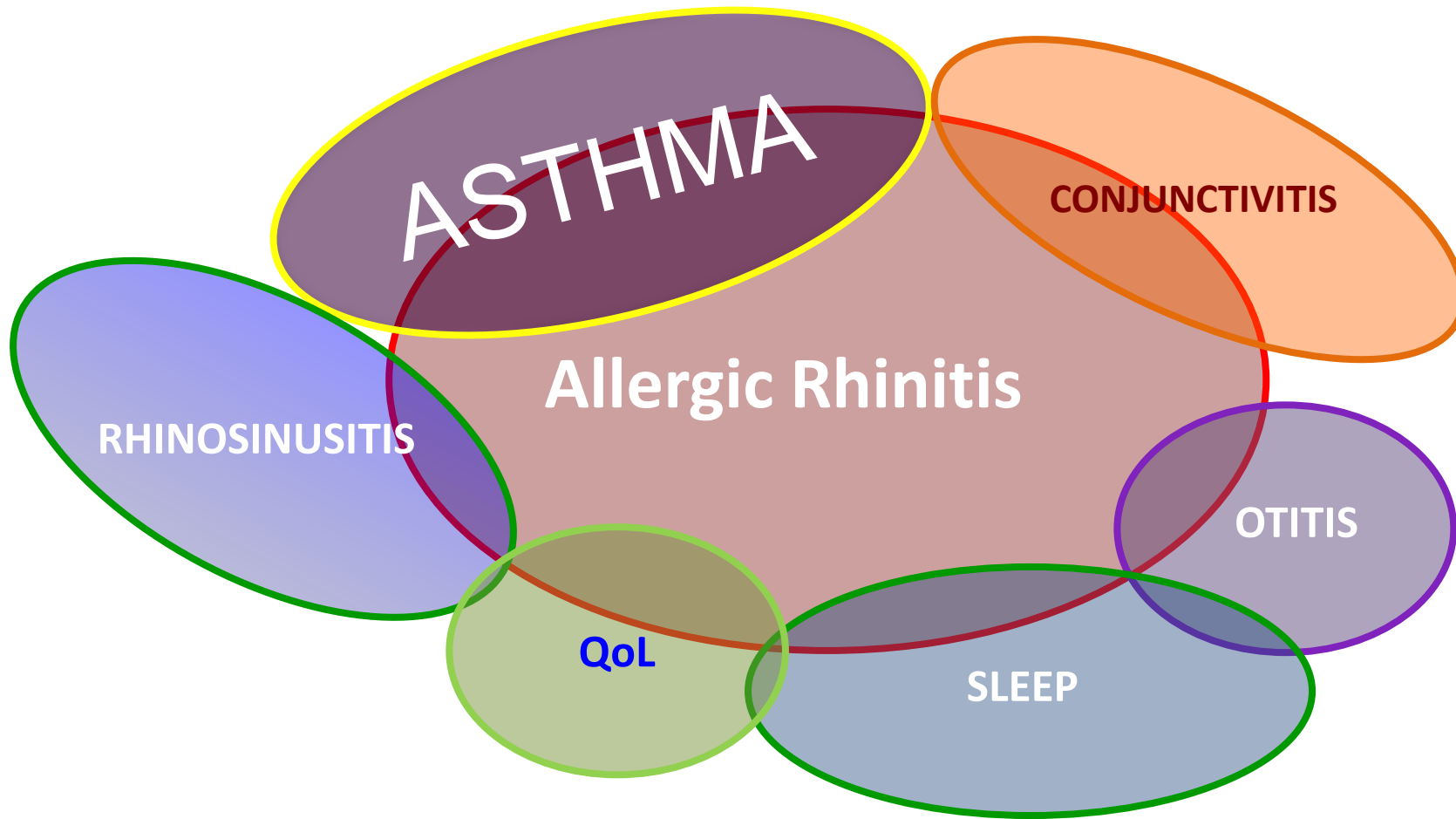


The prevalence of allergic
rhinitis is still increasing!



United Airways Disease = One Way, One Disease

Rhinitis and its co-morbidities



Rhinitis / Asthma : Similarities

- Frequently coexist
- Respiratory pseudostratified epithelium
- IgE-dependent mechanisms
- Th2 T lymphocyte activation
- Eosinophil recruitment
- Mast cell / basophil activation and transepithelial migration

Rhinitis / Asthma: Differences

Rhinitis

- Epithelium intact
- Basement membrane normal
- No airway smooth muscle
- Venous sinusoids
- Submucosal glands prominent
- Remodelling absent
- Antihistamines effective
- β_2 -agonists ineffective

Asthma

- Epithelium disrupted
- Basement membrane abnormal
- Bronchial smooth muscle
- No venous sinusoids
- Submucosal glands few
- Remodelling present
- Antihistamines ineffective (?)
- β_2 -agonists effective



Needs for guidelines in the management of allergic rhinitis

- Allergic rhinitis is a **global** health problem affecting 5 to 50 % of the population
- Its prevalence is **increasing**.
- Although it is not usually a severe disease, rhinitis **alters social life** and affects school performance and work productivity.
- **Costs** incurred by rhinitis are substantial.
- Implementation of **guidelines improves** the condition of patients with allergic rhinitis.



ARIA

**The classification "seasonal" and
"perennial" allergic rhinitis**

has been changed to

**"intermittent" and "persistent"
allergic rhinitis**



ARIA Classification

Intermittent

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

Persistent

- . ≥ 4 days per week
- . and ≥ 4 weeks



Mild

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

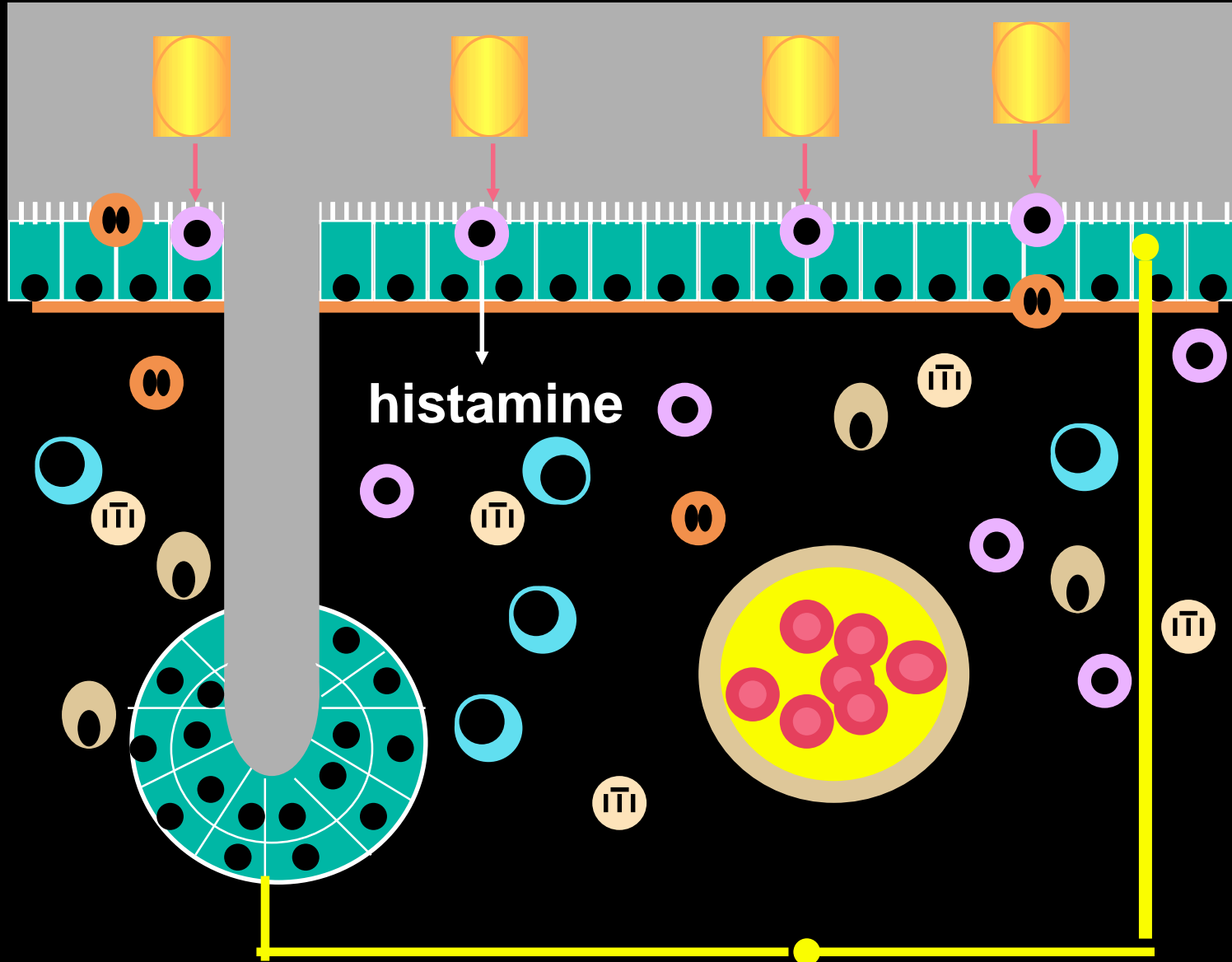
Moderate-severe

one or more items

- . abnormal sleep
- . impairment of daily
activities, sport, leisure
- . abnormal work and
school
- . troublesome symptoms

in untreated patients

Persistent rhinitis





**allergen
avoidance**
*indicated
when possible*

pharmacotherapy
*safety
effectiveness
easily administered*

costs

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

**patient
education**
always indicated



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 chromone	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	nasal obstruction	nasal itch	eye symptoms
H1-antihistamines					
oral	+++	+++	0 to +	+++	++
intranasal	++	+++	+	++	0
intraocular	0	0	0	0	+++
Corticosteroids	+++	+++	++	++	+
Chromones					
intranasal	+	+	+	+	0
intraocular	0	0	0	0	++
Decongestants					
intranasal	0	0	++	0	0
oral	0	0	+	0	0
Anti-cholinergics	0	+++	0	0	0
Anti-leukotrienes	+	++	++	?	++



Mild intermittent rhinitis

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

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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

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Options (not in preferred order)

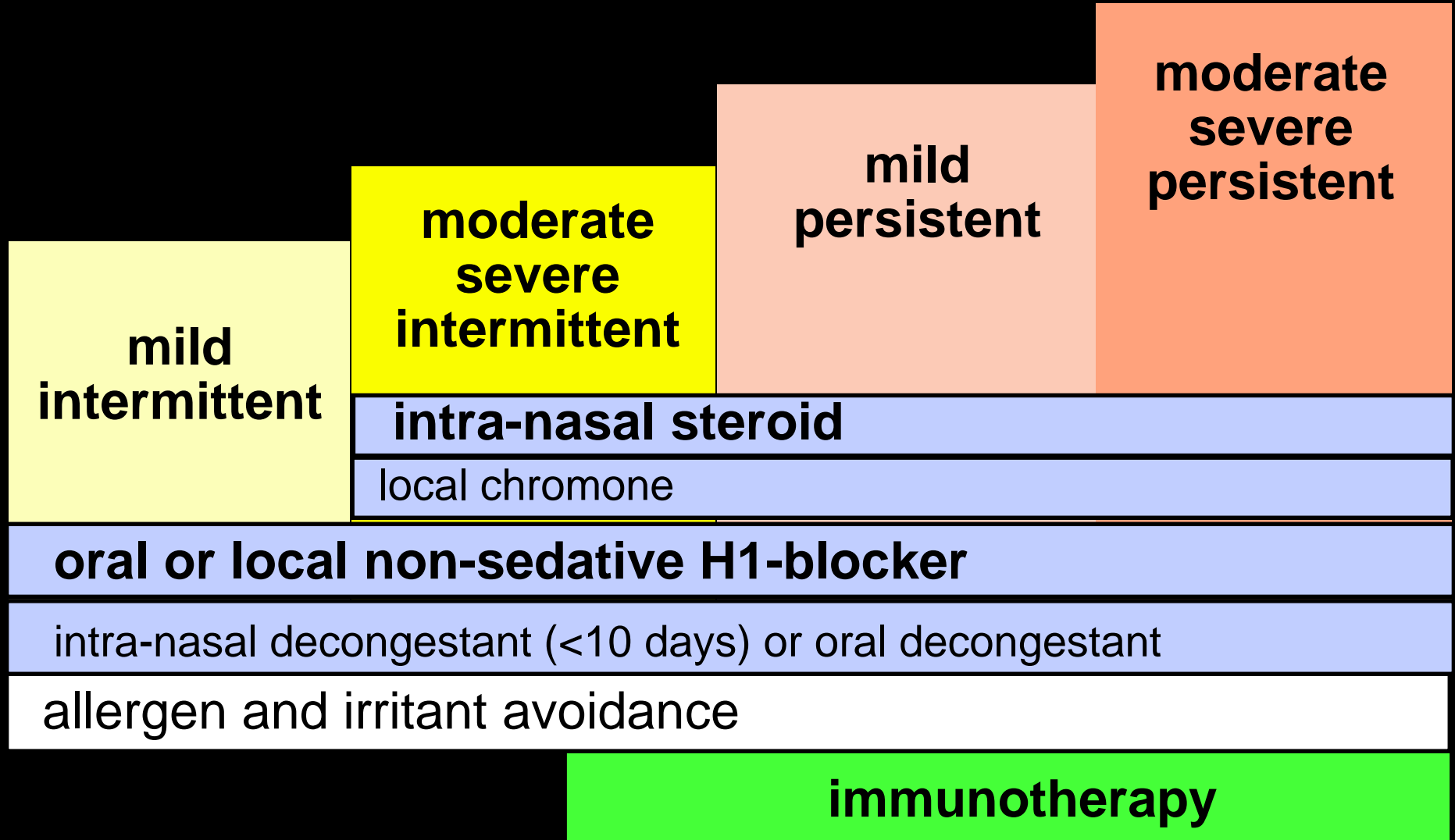
- oral or ocular anti-H1
- ocular cromones
- saline

Do not use ocular CS without care and eye examination



Treatment of allergic rhinitis (ARIA)

Allergic Rhinitis and its Impact on Asthma





ARIA in low-income countries

- **The rationale for treatment choice in developing countries is based upon:**
 - **level of efficacy**
 - **low drug cost affordable for the majority of patients**
 - **inclusion in the WHO essential list of drugs:**
only chlorpheniramine and BDP are listed
- **It is hoped that new drugs will be available on this list**

Razi's report about seasonal allergic rhinitis (hay fever) from the 10th century AD

Authors: G A Bungy, J Mossawi, S A Nojoumi, J Brostoff

International archives of allergy and immunology. 07/1996; 110(3):219-24

- Seasonal allergic rhinitis (hay fever) is considered a disease of the postindustrial revolution era. Clinical reports of patients are readily available from the 19th century starting with John Bostock's description of his own summer symptoms. Also patients with 'rose catarrh' are described in the 16th and 17th century. Although asthma is well described by Maimonides, clear descriptions of diagnosis, prevention and treatment of hay fever are rare in the first millennium. This report by Razi (prior to 925 AD) is perhaps the earliest such report yet. It is contained in a compendium written by Ibn Sharabeyun ben Ibrahim in the 13th or 14th century AD. The volume also contains work by Avicenna (Abo Ali-Sina; a friend of Razi) and other contemporary writers. Some of the treatments suggested in this early report may not be so acceptable to modern sufferers.



بسم الله الرحمن الرحيم
 ابن زكريا الرازي سبله عن علمه انه زيدا همدان الملقب بالاب
 فاحط به فمات ملا لرت من وصف العلماء التي لقنا دشتخنا
 البربر العلماء سبها ولم يحتاج في فصل الربيع حاشته ومار عمه
الوزي سجوا بطول وله لك افتقرت على كثير ما حتاج ايه لواحد من
 منها ومعالجتها

Allergies and fever

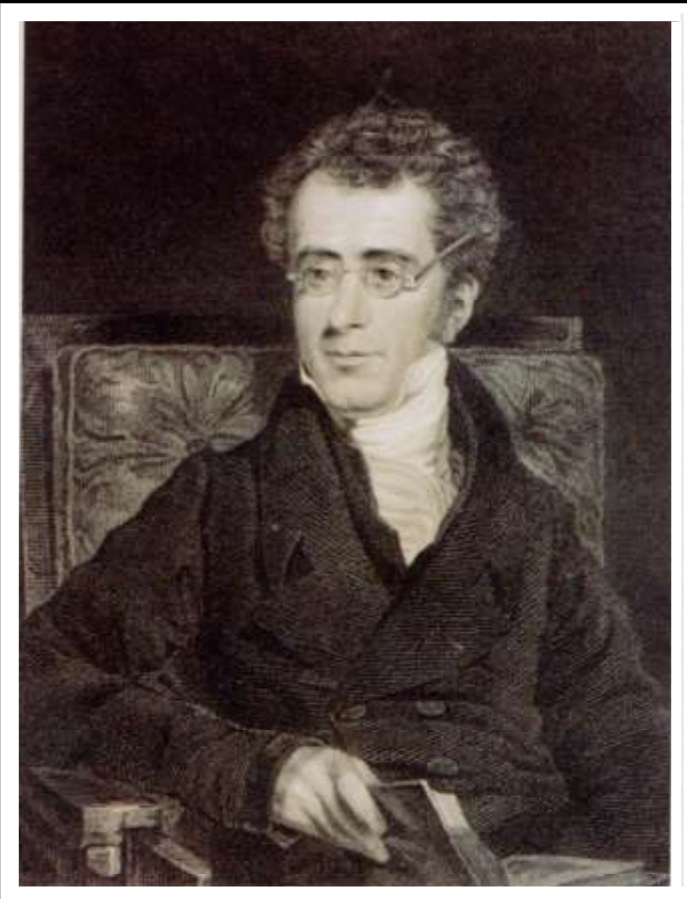
Razi is also known for having discovered "allergic asthma," and was the first physician ever to write articles on allergy and immunology. In the Sense of Smelling he explains the occurrence of 'rhinitis' after smelling a rose during the Spring: Article on the Reason **Why Abou Zayd Balkhi Suffers from Rhinitis When Smelling Roses in Spring**. In this article he discusses seasonal 'rhinitis', which is the same as allergic asthma or hay fever. Razi was the first to realize that fever is a natural defense mechanism, the body's way of fighting disease.

■ www.summagallicana.it



First description of hay fever

John Bostock, Med Chir Trans, 1819; 10: 161



"About the beginning or middle of June in every year

.... A sensation of heat and fulness is experienced in the eyes

.... To this succeeds irritation of the nose producing sneezing

.... To the sneezings are added a further sensation of tightness of the chest, and a difficulty of breathing"



Links between rhinitis and asthma: Epidemiologic evidence

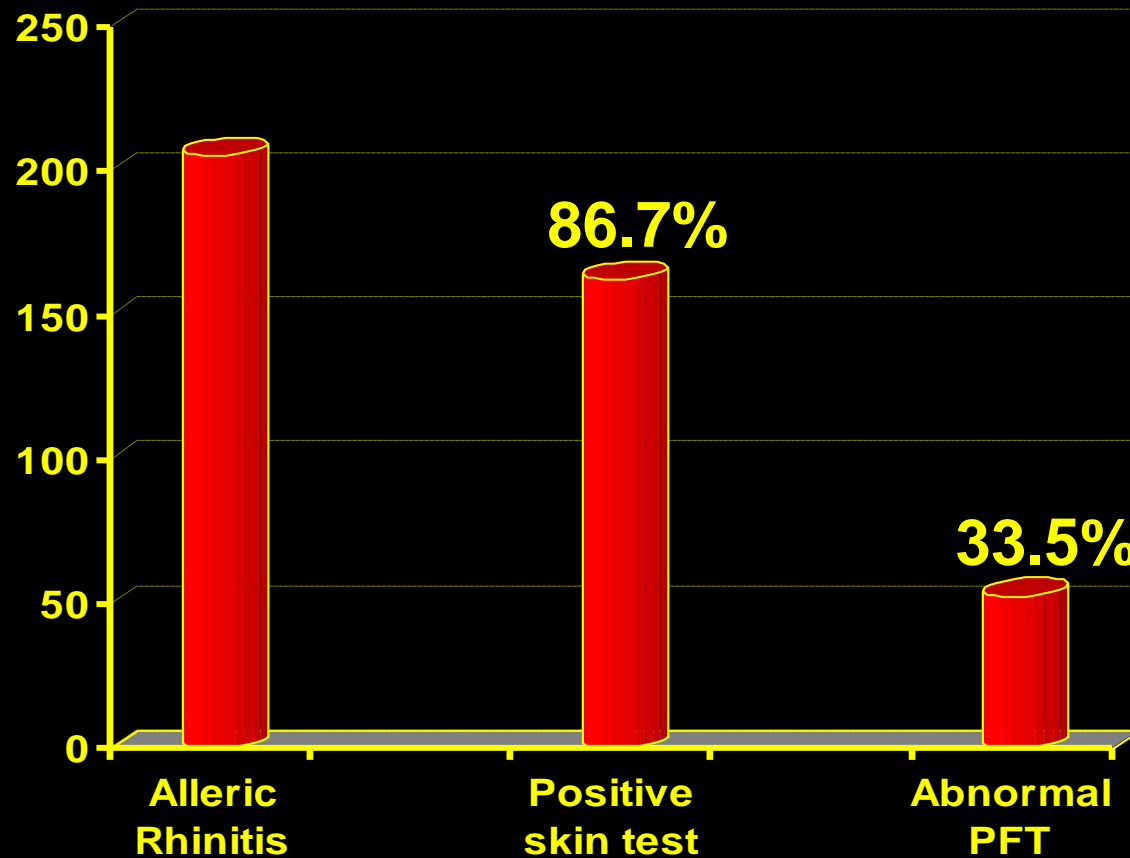
- 1- Asthma prevalence is increased in allergic and non-allergic rhinitis**
- 2- Rhinitis is almost always present in asthma**
- 3- Rhinitis may be a risk factor for asthma**
- 4- Non-specific bronchial hyperreactivity is increased in persistent rhinitis**

A Single Center Study of Clinical and Paraclinical Aspects in Iranian Patients with Allergic Rhinitis

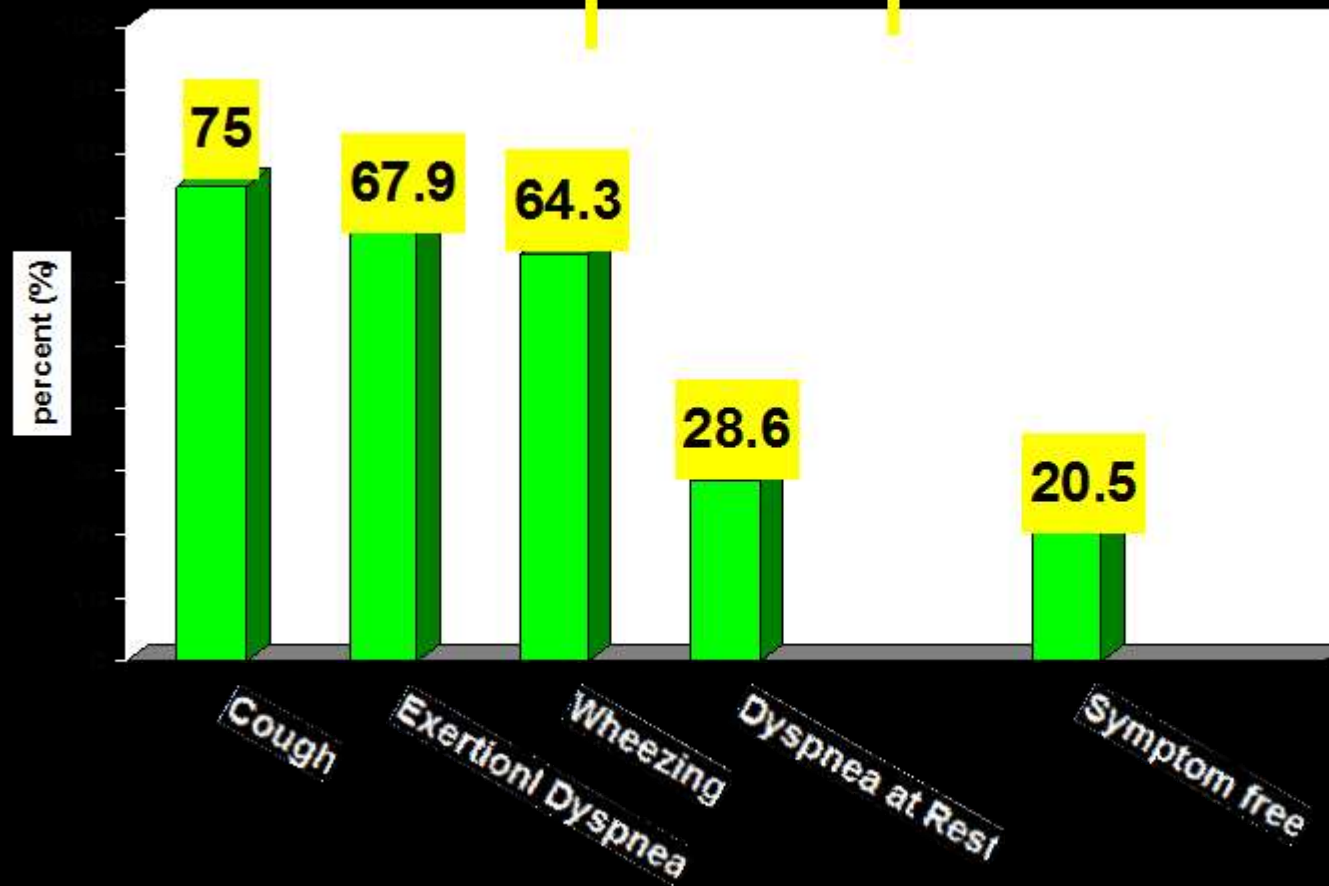
**Kourosh Mohammadi, Mohammad Gharagozlou,
and Masoud Movahedi.**

**Iranian Journal of Allergy, Asthma and Immunology,
September 2008; Vol. 7, No. 3, p. 163-167.**

AR: Lab Findings (cont.)



Frequencies of lower respiratory symptoms in AR patients with abnormal spirometry





Recommendations

- 1- Patients with persistent rhinitis should be evaluated for asthma**
- 2- Patients with persistent asthma should be evaluated for rhinitis**
- 3- A strategy should combine the treatment of upper and lower airways in terms of efficacy and safety**

Thank you

