Management and a Structured approach to Allergic Rhinitis in a clinical setting

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Objectives

- Epidemiology
- Making the right diagnosis
- Treatment guidelines on the basis of evidence

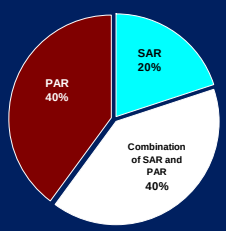
Definition

Symptomatic disorder of the nose induced after allergen exposure by an IgE mediated inflammation of the membranes lining the nose.

Prevalence

- 20% prevalence rate worldwide
- Asia – increased from 5% TO 45%
- All ages are affected.
- Onset mean age 8 – 11yrs. 80% develops by age 20 yrs.
- Children: 40% prevalence subsequently decreases with age.

Prevalence of seasonal and perennial allergic rhinitis



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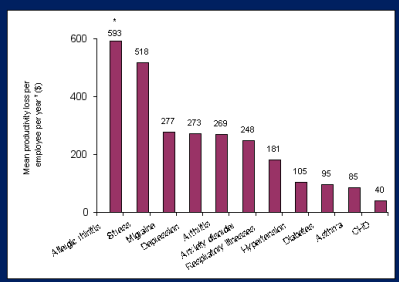

Lamb CE, Ratner PH, Johnson CE, Ambeganonkar AJ, Sampson N, Eng B. Economic impact of allergic rhinitis on productivity in the workplace. Presented at the American Academy of Allergy, Asthma and Immunology annual meeting, April 2003.

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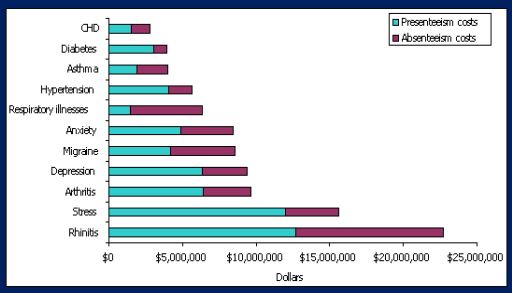
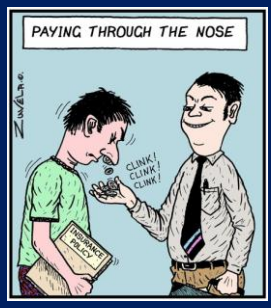


Donald Gemson, Benjamin Eng.
The Impact of Allergic Rhinitis On Employee Health and Productivity.Business and Health August 2004;22.



ARIA guidelines: classification of allergic rhinitis

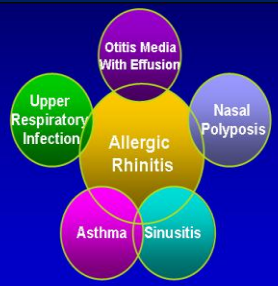
Intermittent symptoms
- <4 days per week *or*
- <4 weeks

Persistent symptoms
- >4 days per week *and*
- >4 weeks

Mild symptoms
- Normal sleep
- Normal daily activities
- Normal work and school
- No troublesome symptoms

Moderate-severe symptoms ≥*1 items*
- Abnormal sleep
- Impairment of daily activities, sport, leisure
- Problems caused at school or work
- Troublesome symptoms

AR and Comorbid airway disease



Spector. *J Allergy Clin Immunol.* 1997;99:S773-S780.

Comorbidities implications on treatment

- Treatment of allergic rhinits may be important for its own sake and for its impact on other upper and lower airway diseases

Leynaert et al. *J Allergy Clin Immunol.* 1999;104:301-304. Corren. *J Allergy Clin Immunol.* 1997;99:S781-S786. Spector. *J Allergy Clin Immunol.* 1997;99:S773-S780. Storms et al. *J Allergy Clin Immunol.* 1997;99:S820-S824. Sporik et al. *N Engl J Med.* 1990;323:502-507. Lundback. *Clin Exp Allergy.* 1998;28(suppl:2)3-10.

Diagnosis

- **History and Examination**
- Skin prick test
- Allergy blood test – RAST, fluorescence enzyme labelled assays
- Nasal Provocation test

Making a diagnosis of allergic rhinitis (AR) - symptoms

- Sneezing, itchy nose, itchy palate (AR very likely)
  - Seasonal? (pollens or mould spores)
  - At home? (pets or house dust mite)
  - Improves on holiday?
- Rhinorrhoea
  - Clear (AR likely)
  - Yellow (AR or infection)
  - Green, blood tinged or unilateral (other cause)

Making a diagnosis of allergic rhinitis (AR) - symptoms

- Nasal obstruction
  - Unilateral (AR unlikely) vs bilateral
- Nasal crusting
  - AR unlikely
- Eye symptoms
  - Often seen with AR, especially seasonal AR
- LRT symptoms
  - Cough may be caused by AR
- Other symptoms
  - Snoring, sleep disturbance, mouth breathing, "nasal voice" (not v. specific for AR)

- Sneezers& runners –
  Intermittent
  Atopy family history

- Blockers –
  Persistent
  Sinusitis
  Higher sensitization to fungi (62%) and house dust mite

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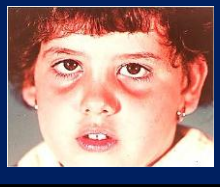
Examination

Allergic shiners



Allergic salute

Transverse nasal crease

Skin testing?

NO

- Hx suggestive for AR
- Trial of appropriate therapy successful
- Symptoms mild and easily managed
- Mechanical, anatomical, or infectious causes

YES

- Poor response to therapeutic trial
- Persistent &/or mod severe AR
- Q0L affected
- Strong desire for immunotherapy

- In India commonest allergen on skin testing is pollens, fungi (A.flavus) and house dust mite (Dermatophagoides farinae)

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ASIAN PACIFIC JOURNAL OF ALLERGY AND IMMUNOLOGY (2009) 27: 71-77

Treatment guidelines

- Patient education
- Allergen avoidance
- Pharmacotherapy
- Immunotherapy

Allergic rhinitis and its impact on asthma guidelines 2001

Treatment

- Education
  - Nature of disease
  - Symptoms
  - Complications (eg sinusitis, otitis media, later asthma)
  - Allergen avoidance
  - Realistic expectations of treatment
  - Drug treatment and potential sideeffects
  - Compliance and correct technique

Allergen avoidance

- Good evidence for pets (but takes time for cats), horses and certain occupational allergens
- Weak evidence for house dust mite avoidance, most benefit with multiple interventions
- Some evidence for pollen filters and nasal air filters

- Mite proof pillow covers and bedding
- Wash bedding once a week in hot water
- Dusting with a wet cloth
- Carpets to be vacuumed (HEPA filter)
- Wooden and leather furniture
- Pollen filters – window filta
- Nasal filters- activated carbon and cellulose

Ethnic Nasal Filter

PHARMACOTHERAPY

Topical Nasal Treatments

- Corticosteroids
- Antihistamines
- Chromones
- Anticholinergics
- Decongestants

Oral Treatments

- Antihistamines
- Corticosteroids
- Antileukotrienes
- Decongestants

Treatment plan

- Duration and severity of symptoms.
- Type of symptoms

Intermittent mild

- Oral antihistamine OR intranasal H1 blocker

↓

Not better

↓

Intranasal CS

Intermittent mod severe Persistent mild

Intranasal steroids

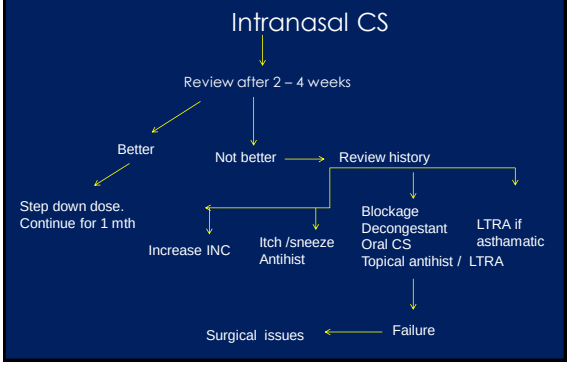
↙ ↘

Persists for 2 – 4 weeks → Check use/compliance
Oral CS – One dose

Improves → Continue for 1 month

Nasal decongestants for congestion
Nasal antihistaminics for rhinorrhoea
Oral antihist for persistent nasal ocular symptoms

Persistent modsevere



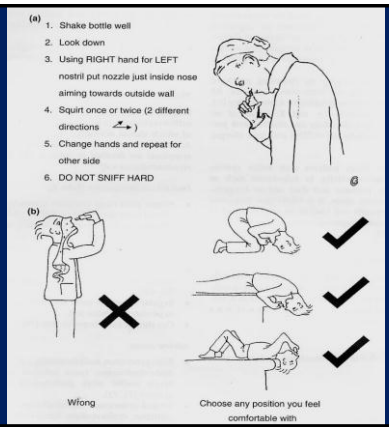
Allergic rhinitis: Symptom related ARIA treatment guidelines

	Congestion	Rhinorrhoea	Itching / sneezing	Duration
Intranasal steroids	+++	+++	++/+++	12-48 h
Oral antihistamines	+	++	+++/++	12-24 h
Oral decongestants	+	-	-/-	3-6 h
Intranasal cromones	+	+	+/+	2-6 h
Anticholinergics	-	++	-/-	4-12 h
Antileukotrienes	++	+	-/-	Not reported

Bousquet et al. Allergy 2002; 57: 841-855.
van Cauwenberge et al. Allergy 2000; 55: 116-134.

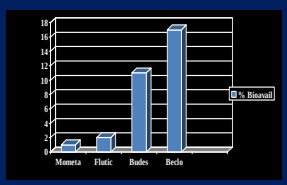
Nasal Sprays

- Nasal steroids
- Cromolyn - nasalcrom
- Oxymetazoline
- Ipratropium (anticholinergic)
- Nasal saline – jal neti



Nasal Steroids

- Mometasone
- Fluticasone
- Budesonide
- Beclomethasone



Fluticasone fluorate - < 0.5% bioavailabillity.
Can be used in children more than 2 yrs of age.

TABLE 1

Intranasal corticosteroid preparations

STEROID PREPARATION	AGE INDICATED (YEARS)	SYSTEMIC BIOAVAILABILITY (%)	AVERAGE WHOLESALE PRICE*
First-generation formulations			
Beclomethasone dipropionate (Beconase AQ)	> 6	17	$77.56 (25-g inhaler)
Flunisolide (Nasarel)	> 6	20–50	$69.73 (25-mL bottle)
Triamcinolone acetonide (Nasacort AQ)	> age 6	22	$75.85 (16.5-g inhaler)
Second-generation formulations			
Budesonide (Rhinocort Aqua)	> 6	11	$76.13 (8.6-g bottle)
Fluticasone propionate (Flonase)	> 4	< 2	$70.87 (16-g bottle)
Mometasone furoate (Nasonex)	> 2	< 0.1	$74.47 (17-g inhaler)

*Prices from Red Book 2005

MODIFIED FROM HADLEY JA, KAVURU MS, ANON JB, PIEN LC. DIAGNOSIS AND MANAGEMENT OF RHINITIS AND RHINOSINUSITIS. 3RD ED. NEW YORK: PROFESSIONAL COMMUNICATIONS INC; 2005:65, WITH PERMISSION.

INS – is one better than the other

- No clear evidence to support the suggestion that one steroid spray is more effective than another.
- All the sprays have a similar side-effect profile; the commonest being epistaxis with a reported incidence between 17 and 23 per cent. The placebo spray had an appreciable rate of epistaxis of between 10 to 15 per cent.
- Fluticasone causes a reduction in endogenous cortisol secretion but no significant adrenal suppression was seen with triamcinolone, beclomethasone, budesonide or mometasone.
- There is little evidence that skeletal growth is restricted by the administration of topical nasal steroid sprays.

A.N. Waddell et al : The Journal of Laryngology & Otology Volume 117 / Issue 11 / November 2003, pp 843-845

FAQ

- Effect on DM, HT – not reported. No study has addressed this issue.
- Effect on Glaucoma – no association
- Childrens growth – affected by beclomethasone dipropionate
- Effect on HPA axis – dexamethasone, betamethasone
- Adrenal suppression – not reported in children. In adults with budesonide and fluticasone propionate

Combination therapy

- Intranasal CS with antihistamines / antileukotrines : no more effective than Intranasal CS alone
- Fluticasone with azelastine more effective than either agent alone
- Recommended to begin with single agent and use combination for severe or persistent symptoms

PAEDIATRIC ALLERGIC RHINITIS

- 4 years and older should be treated as for adults
- Children (>4) with AR and Asthma can be treated with combination of newer generation topical and inhaled corticosteroids with low risk of complications
- Diagnosis in smaller children is difficult as can have up to 6 to 8 colds per year
- Small children – oral antihistamines, saline sprays and corticosteroids if symptoms severe

AR RHINITIS IN PREGNANCY

- Nasal Saline
- Nasal corticosteroids – all Category C except Budesonide which was recently reassigned B – nasal steroid of choice
- Antihistamines – chlorpheniramine, loratadine and cetrizine are B
- Oral steroids - C
- Decongestants - C

Immunotherapy

- Rise in IgG "blocking" antibodies
- Reserved for patients who find it difficult to avoid allergens but do not respond adequately to pharmacologic therapy
- Children > 7 years old

Summary

- Allergic rhinitis is common, often persistent, but often overlooked
- Diagnosis is relatively straightforward if the right questions are asked
- Mainstays of treatment are allergen avoidance, oral antihistamines and intranasal corticosteroids
- Strong link with asthma

Oral (H1) antihistamines

Age > 6 months	Non-sedating	Sedating Trimeprazine
> 1 year	Desloratidine	Hydroxyzine Chlorphenamine
> 2 years	Cetirizine (SAR only) Loratidine Levocetirizine	Promethazine Ketotifen
> 6 years	Fexofenadine (SAR only) Cetirizine	

Oral antihistamines

- Effect mainly on itch, sneeze and rhinorrhoea, less on congestion
- Effects on other sites eg eyes, palate
- Acts within 2-4 hours
- Sedation, otherwise few adverse events
- Also available topically, azelastine, which has quick onset of action, but local irritation and taste disturbance a problem

Nasal corticosteroids

- Acts on all symptoms of AR
- Often improves eye symptoms
- Onset of action within 6-8h, maximal effect may not be seen for 2 weeks
- Once or twice daily dosing
- Systemic absorption least for mometasone and fluticasone with reassuring safety data
- Local irritation (worse with alcohol containing preparations), sore throat and epistaxis affect about 10%

Oral antileukotrienes

- Not as effective as intranasal CS and antihistamines
- To be considered for second/third line therapy

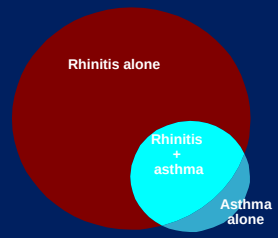
Other therapies

- Oral anti-leukotrienes
  - Montelukast licensed for SAR + asthma > 6 months, Zafirlukast > 12 y
- Topical cromones
  - Sodium cromoglicate (qds)
- Topical anti-cholinergics
  - Ipratropium given tds may help rhinorrhoea
- Nasal saline douches
- Intranasal decongestants
  - Short term only (useful at start of therapy), rebound symptoms
- Allergen immunotherapy
- Anti-IgE therapy

One airway, one disease?

Most patients with asthma have rhinitis

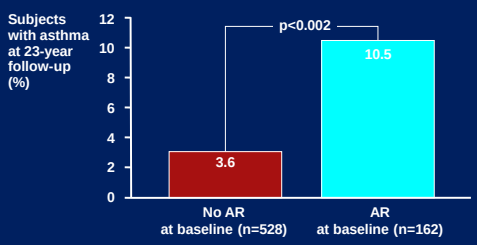
- Approximately 80% of patients with asthma have rhinitis



Leynaert et al 2000

Allergic rhinitis is a risk factor for asthma

- Allergic rhinitis increases the risk of asthma ~3-fold



Link between allergic rhinitis and asthma

- Some patients with allergic rhinitis report increased asthma symptoms during the pollen season
- Rhinitis and asthma involve a common respiratory mucosa
- Inflammation is involved in the pathogenesis of both allergic rhinitis and asthma
- Allergic reactions in the nasal mucosa can potentially worsen asthmatic inflammatory processes in the lower airways
- Allergen specific immunotherapy for rhinitis reduces development of asthma in children

How can rhinitis worsen asthma?

- Nasal blockage leads to mouth breathing and exposure to cold, dry air, and an increase in allergens in the lower respiratory tract
- Nasal challenge induces release of bone marrow eosinophils into the systemic circulation, which in turn can result in an inflammatory response within the entire respiratory tract
- Rhinitis causes bronchial hyperreactivity
- Neurogenic reflexes?
- Nitric oxide changes?

Treating allergic rhinitis cuts asthma costs

- 61% fewer hospitalisations in treated patients