Challenges in the Management of Early Childhood Rhinitis

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Current Classification of Rhinitis

ARIA classification (Dykewicz and Hamilos, 2010):

- Allergic Rhinitis
- Nonallergic rhinitis
- Occupational
- Other triggers (Hormone, Drug, etc)
  - Idiopathic (non allergic without eosinophilia)
  - Infectious
  - Nares

ARIA Update. Allergy 2008
Most are not allergic rhinitis

**Atopy was defined as sensitization to house dust mites, cockroach, cat, dog, mould, and grass**

The natural history of acute upper respiratory tract infections in children

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• Dairy cards of 146 children (4 to 12 yrs) with acute URI

• Duration of symptoms
  – last for approximately 5–11 days
  – rarely more than 14 days

Infectious rhinitis
Rhinitis Duration

- ARIA guideline (WHO):
  » Rhinitis lasting ≥2 weeks may have other causes than cold
Rhinitis in the first 18 months of life: Exploring the role of respiratory viruses

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Keywords
birth cohort; infants; quality of life; respiratory virus; rhinitis

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Abstract
Background: Rhinitis is common in early childhood, but allergic rhinitis is considered a later manifestation of the atopic march. This study aimed to evaluate rhinitis (allergic and non-allergic) in the first 18 months of life, its link with other atopic manifestations and the role of respiratory viruses.

Methods: Subjects in the Singapore GUSTO birth cohort were followed up quarterly until 18 months of age with questionnaires on symptoms of rhinitis and other atopic conditions. Nasal swabbing for molecular-based virus detection was conducted during these visits and (within a month) rhinitis episodes. Skin prick testing to common environmental and food allergens was conducted at the 13 month visit.

Results: Prolonged/recurrent rhinitis was significantly associated with history of parental atopy (mother: aOR = 2.17; father: aOR = 1.92) and atopic comorbidities of eczema (aOR = 2.53) and wheezing (aOR = 4.63) (p < 0.05), although not with allergen sensitisation. Although the frequency of nasal respiratory virus detection during scheduled quarterly visits did not differ between prolonged/recurrent rhinitis and matched controls (p > 0.05), virus detection was higher in swabs obtained within a month following rhinitis episodes in prolonged/recurrent rhinitis subjects compared with matched subjects (adjusted p = 0.04).

Conclusions: Based on the duration of rhinitis symptoms, this study defined a subset of early childhood rhinitis which was associated with atopic predisposition and comorbidities. Persistent respiratory viral shedding may contribute to the symptomatology. Whether this entity is a precursor of subsequent childhood allergic rhinitis will require longer follow-up.
Factors Associated with Rhinitis: Multivariiate Analysis

≥2 weeks (n=235) vs control (n=498)

Eczema
Wheeze
Any Food Sensitization
Male
Malay*
Indian*
Maternal History
Paternal History
Antibiotics Within 12 Months
Childcare Within 12 Months

*In reference to Chinese
Adjusted for each other and mode of delivery

Hardjojo A et al Ped Allergy Immunol 2015
Onset Rhinitis in the First Year

Birth cohort (n=747) Tucson Respiratory Group

Onset rhinitis ≤1yr more likely than onset >1yr:
• Allergic rhinitis by 6 years (77 vs 57%) (p<0.00005)
• Asthma by 6 years (23 vs 13%) (p<0.005)

Early onset rhinitis is a risk factor for allergic rhinitis in later childhood

Wright et al Pediatr 1994
Summary of Rhinitis in Early Life

• Early onset rhinitis maybe an early manifestation of the ‘atopic’ phenotype

• Phenotype may not be associated with allergen sensitization
  – but may occur subsequently

• Virus shedding may persist
  – ? Related to symptomatology
Approach to Rhinitis in Children

Symptoms suggestive of allergic rhinitis:
- 2 or more of the following symptoms for >1 h on most days
  - Watery rhinorrhea
  - Sneezing, especially paroxysmal
  - Nasal obstruction
  - Nasal pruritis
  ± Conjunctivitis

Symptoms usually NOT associated with allergic rhinitis:
- Unilateral symptoms ++++
- Nasal obstruction without other symptoms
- Mucopurulent rhinorrhea
- Posterior rhinorrhea (post nasal drip)
  - With thick mucus
  - And/or no anterior rhinorrhea
- Pain
- Recurrent epistaxis
- Anosmia

Classify and assess severity
Refer the patient to specialist

Aria Update, Allergy 2008
Differential Diagnosis of Rhinitis in Young Children

• Foreign body

• Anatomical variations
  – Unilateral choanal atresia
  – Benign tumours (dermoid cyst)

• Mucociliary dyskinesia
THE UPPER AIRWAY AND COMORBIDITIES

Rhinitis
‘sneezers and runners’
‘blockers’

Sinusitis

Hearing/speech problems & Serous Otitis Media

Obstructive sleep apnea

Learning problems and Fatigue

Asthma
Efficacy of Isotonic Nasal Wash (Seawater) in the Treatment and Prevention of Rhinitis in Children

Ivo Šlapak, MD; Jana Skoupá, MD; Petr Strnad, MD; Pavel Horník, MD

**Patients:** A total of 401 children (aged 6-10 years) with uncomplicated cold or flu.

**Conclusion:** Children in the saline group showed faster resolution of some nasal symptoms during acute illness and less frequent reappearance of rhinitis subsequently.

Nasal irrigation as an adjunctive treatment in allergic rhinitis: A systematic review and meta-analysis

Kristina E. Hermelinge, M.D.,2 Rainer K. Weber, Ph.D.,1 Martin Hellmich, Ph.D.,2 Christine P. Heubach, M.D.,2 and Ralph Mösges, Ph.D.2

• A systematic search of Medline, Embase, Cochrane Central Register of Controlled Trials, and ISI Web of Science databases for literature published from 1994 to 2010 on SNI in AR.

• SNI using isotonic solution can be recommended as complementary therapy in AR.
• It is well tolerated
• No evidence that regular/daily SNI has adverse effects
## Therapeutic options for allergic rhinitis: Efficacy in nasal and ocular symptoms

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<tr>
<th>Drug</th>
<th>Sneezing</th>
<th>Rhinorrhoea</th>
<th>Nasal obstruction</th>
<th>Nasal itching</th>
<th>Ocular symptoms</th>
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0 = no effect, +++ = maximum effect

INS, intranasal corticosteroid; LTRA, leukotriene receptor antagonist