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Challenges in the Management of Early Childhood Rhinitis

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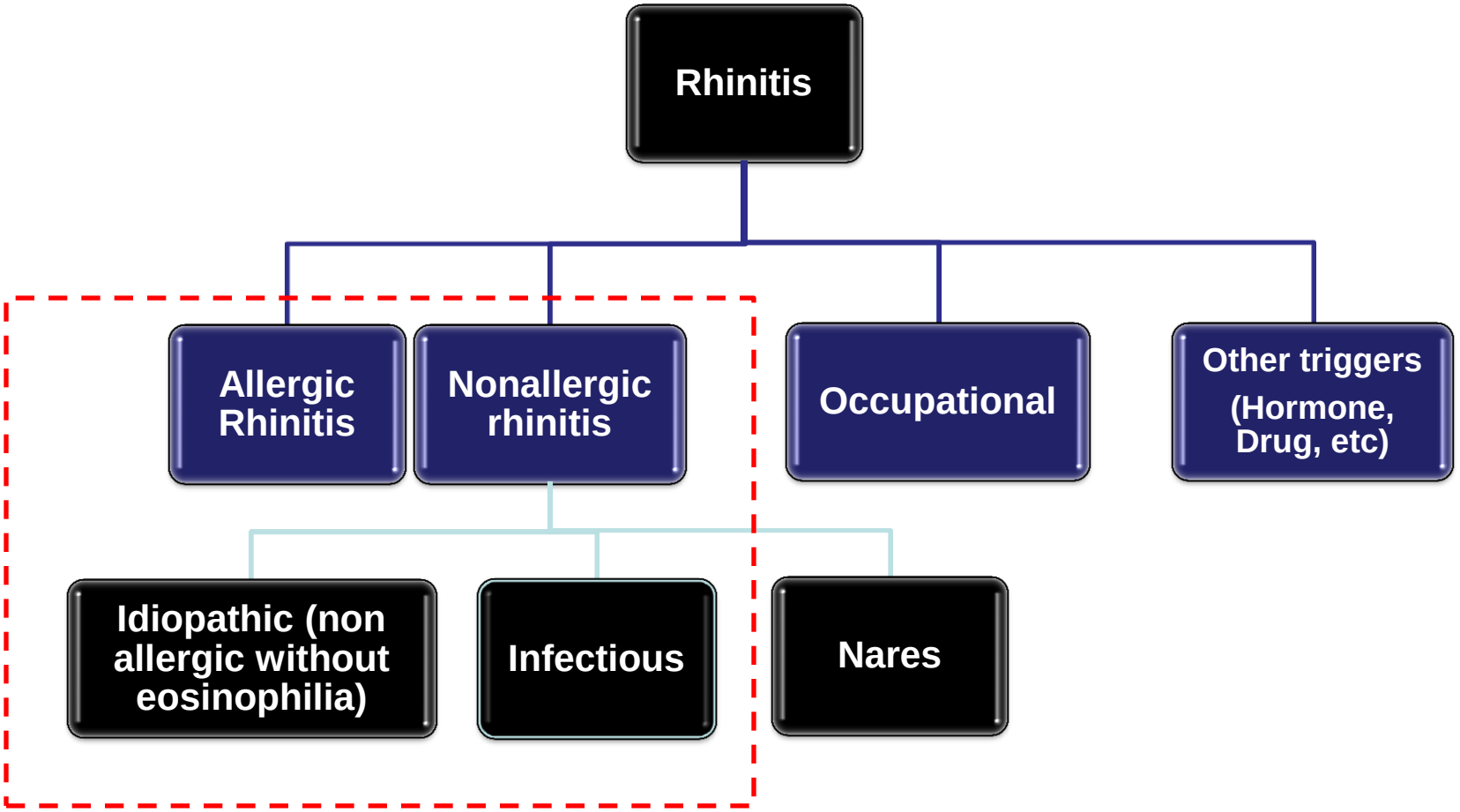
WORLD ALLERGY ORGANIZATION

NUS National University of Singapore

Current Classification of Rhinitis

ARIA classification (Dykewicz and Hamilos, 2010):

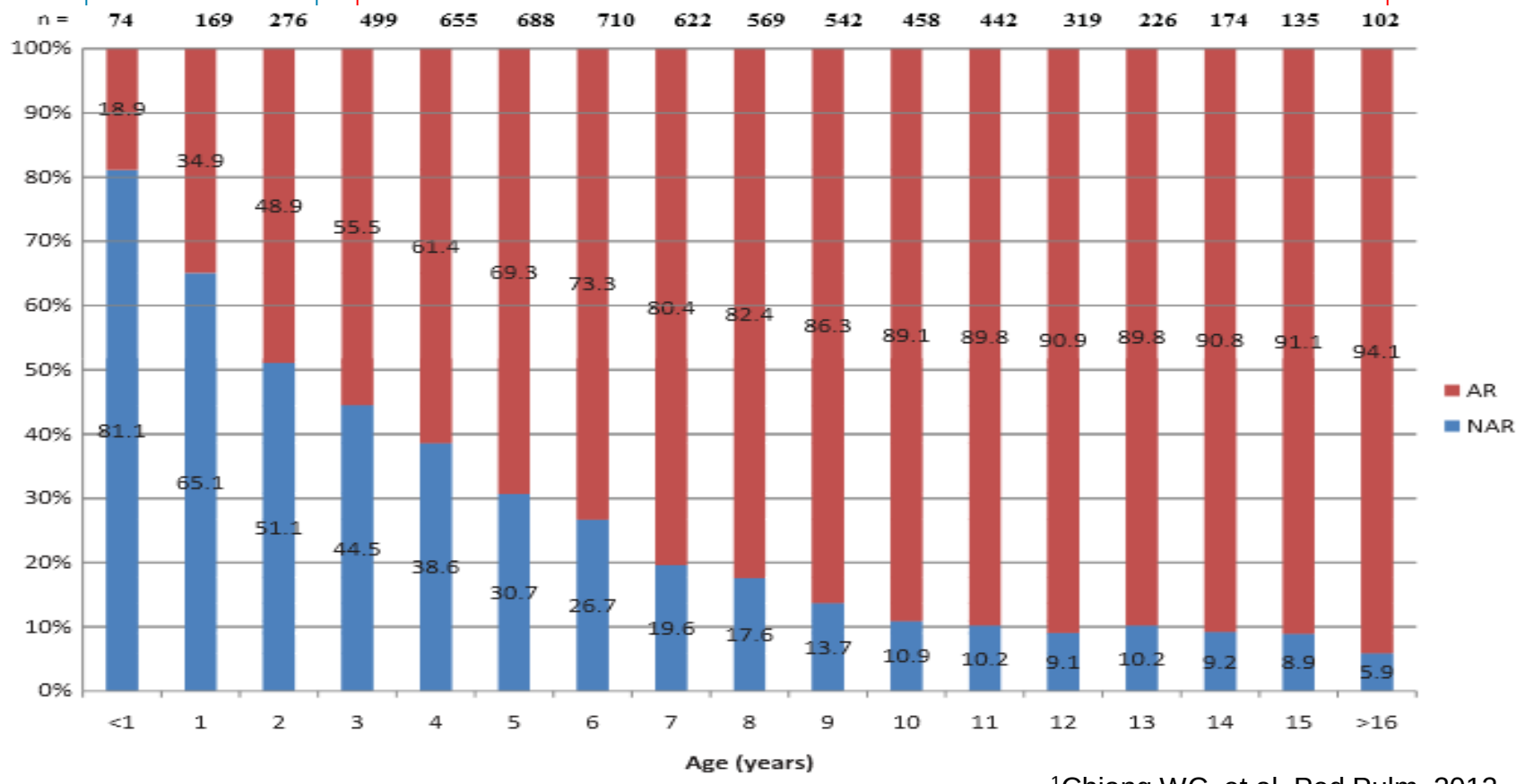


ARIA Update. Allergy 2008

Most are not allergic rhinitis

Mostly Non-allergic

Mostly Allergic



[1]Chiang WC, et al. Ped Pulm. 2012

*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

Andrew Mitra[1], **David Hannay**[2], **Akshat Kapur**[3] and **Gwen Baxter**[4]

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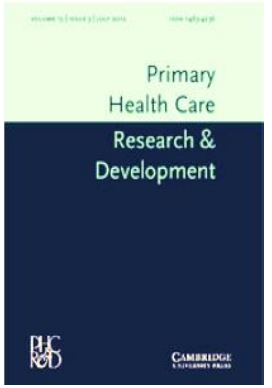

- Dairy cards of 146 children (4 to 12 yrs) with acute URI

- 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

ORIGINAL ARTICLE

Upper airways

Rhinitis in the first 18 months of life: Exploring the role of respiratory viruses

Antony Hardjojo[1], Anne Goh[2], Lynette P.C. Shek[1], Hugo P. S. Van Bever[1], Oon Hoe Teoh[2], Jian Yi Soh[1], Biju Thomas[2], Boon Huan Tan[3,4], Yiong Huak Chan[5], Mahesh Babu Ramamurthy[1], Daniel Y. T. Goh[1], Shu-E Soh[1,4], Seang-Mei Saw[4], Kenneth Kwek[6], Yap-Seng Chong[7,8], Keith M. Godfrey[9], Peter D. Gluckman[8] & Bee Wah Lee[1]

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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.

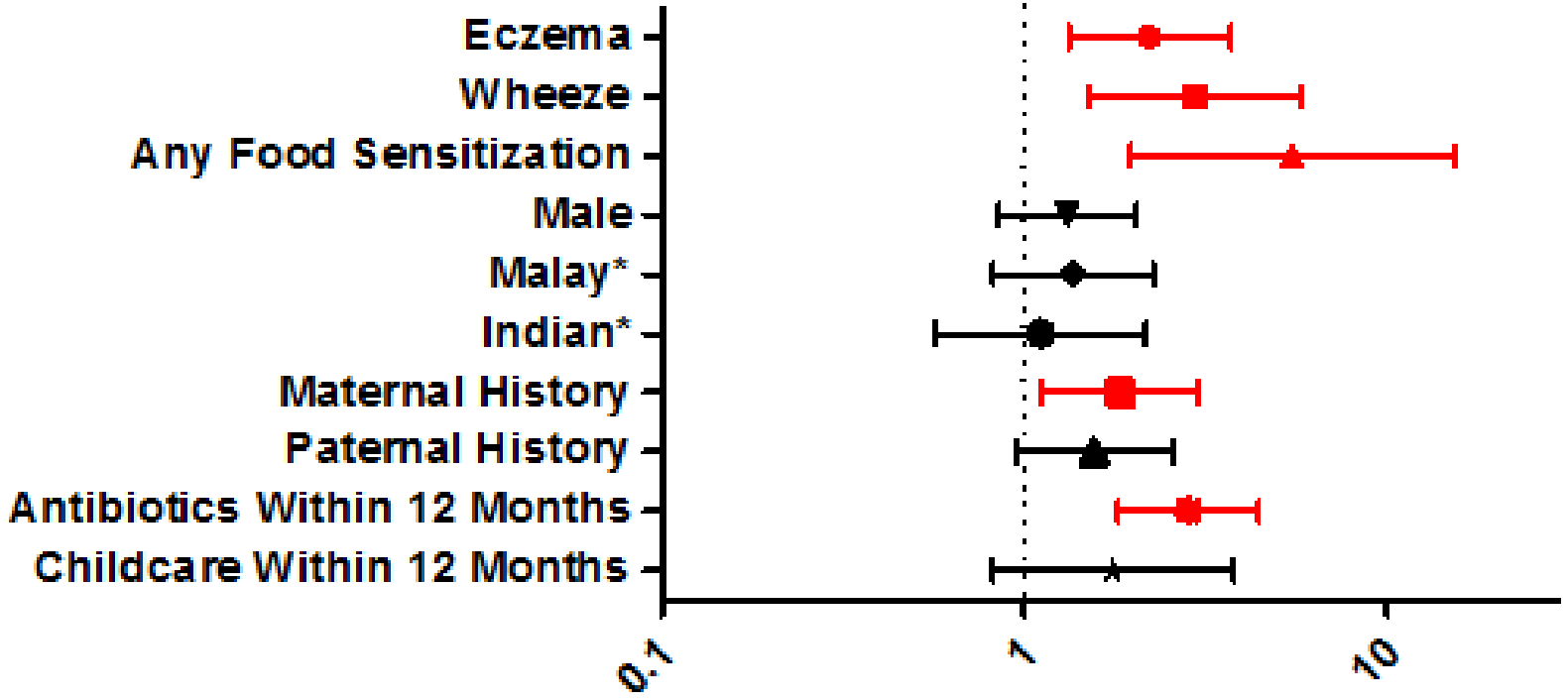
Methods: Subjects (n = 1237) of the Singapore GUSTO birth cohort were followed up quarterly until 18 months of age with questionnaires to screen for rhinitis symptoms lasting at least 2 wk and with monthly calls to positive subjects to detect prolonged/recurrent rhinitis symptoms (total duration ≥4 wk). Anterior nasal swabbing for molecular-based virus detection was conducted during these visits and near (within a month) rhinitis episodes. Skin prick testing to common environmental and food allergens was conducted at the 18 month visit.

Results: Prolonged/recurrent rhinitis was significantly associated with history of parental atopy (mother: aOR = 2.17; father: aOR = 1.82) and atopic comorbidities of eczema (aOR = 2.53) and wheeze (aOR = 4.63) ($p < 0.05$), though not with allergen sensitization. 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 scheduled visits (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: Multivariate Analysis

≥2 weeks (n=235) vs control (n=498)



*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

Classify and assess severity

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

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

Aria Update, Allergy 2008

THE UPPER AIRWAY AND COMORBIDITIES

Hearing/speech problems & Serous Otitis Media

Sinusitis

Obstructive sleep apnea

Rhinitis

‘sneezers and runners’

‘blockers’

Learning problems and Fatigue

Asthma

ORIGINAL ARTICLE

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.

Arch Otolaryngol Head Neck Surg. 2008;134(1):67-74

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

Kristina E. Hermelingmeier, 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*

Am J Rhinol Allergy 2012

Therapeutic options for allergic rhinitis: Efficacy in nasal and ocular symptoms

	Effects on symptoms				
Drug	Sneezing	Rhinorrhoea	Nasal obstruction	Nasal itching	Ocular symptoms
INS	+++	+++	++	++	+
Oral antihistamine	+++	+++	0 to +	+++	++
Intranasal decongestant	0	0	++	0	0
Intranasal chromone	+	+	+	+	0
Anticholinergic	0	+++	0	0	0
LTRAs	+	++	++	?	++

0 = no effect, +++ = maximum effect

INS, intranasal corticosteroid; LTRA; leukotriene receptor antagonist

ARIA Teaching Slides. http://www.whiar.org/slides/aria.ppt. Last accessed 30/04/08.