Allergic rhinitis in Children – more than just a runny nose

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Disclosures

• Advisory board: for Seqirus, Sanofi
• Educational sessions: Stallergenes – Greer, Seqirus, Bayer, Mylan, Sanofi - Aventis
• Co – investigator GSK

Why the sneezy - wheezy patient ?

• Australia has the amongst highest prevalence of allergic disease worldwide (1 in 3 people)
• 1 in 5 have AR
• ~ 2 of 3 do not consult their doctor
• 80% of asthmatics have AR, 40 - 60 % of AR patients have asthma (clinical / sub- clinical)
• Can be dangerous (Melb Nov 21st 2016 – epic thunderstorm asthma event)
• LARGE impact on quality of life, productivity, school performance, emotional well being
• majority of sufferers in peak school / work stages of life
• 80% develop symptoms before age 20, 40% by age 6

Type of Physician Used for Allergies

Is this allergic disease – presenting symptoms

• Blocked or congested nose +/- cyclical congestion
• Sniffing (nasal crease)
• Rhinorrhea
• Sneezing
• Itchy (nose, palate, throat)
• Palatal clicking
• Ocular symptoms (rubbing, allergic shiners )
• Sleep disordered breathing
• Bath towel / symmetrical signs
• Clinical / subclinical asthma

Rhinitis – tip of the iceberg

AR and Asthma
- Very strong association
- One airway
- Must screen all AR patients for asthma
- Question all asthma patients for nasal symptoms
- Action plans and management plans

Sleep disordered breathing
- Spectrum primary snoring – OSA
- Daytime sleepiness and fatigue are common
- Often also present with behavior issues
  - Hyperactivity
  - Poor impulse control
  - Poor concentration
- Effects mandibular and palatal growth – dental malocclusions
- Effect physical activity and sport
- Effects school performance (exams)

Rhinitis and exam performance
- Case-control analysis of 1834 students (age 15-17 years, 50% girls) sitting for national examinations. Cases were those who dropped 1 or more grades in any of 3 core subjects (mathematics, English, and science) between practice (winter) and final (spring/summer) examinations. Controls were those whose grades were either unchanged or improved
  - Rhinitis risk for dropping a grade
  - Rhinitis Rx with sedating antihistamines – 70% more likely to drop a grade

Seasonal allergy rhinitis is associated with a detrimental effect on examination performance in United Kingdom teenagers: Case-control study. J Allergy Clin Immunol 2007;120:381-7

Burden of disease
- BoD (2007) – allergy 21.5 billion (arthritis 11.7 billion)

Behavioral, physical and emotional well being
- Anxiety
- Depression
  - Allergic rhinitis in adolescence increases the risk of depression in later life: A nationwide population-based prospective cohort study. Mu Hong Chen et al. Journal of Affective Disorders Feb 2013
- ADHD
- Self confidence and self esteem
  - Differences in leisure activities between children with allergic rhinitis and healthy peers. Engel – Neger et al in International of Food Quality Dec 2010

Consequences of untreated AR

- Associated with later life onset of ....
  - Chronic sinus disease
  - Non – allergic rhinitis
  - Chronic obstruction requiring surgery
  - Eustachian tube dysfunction
- Impaired performance
  - Work
  - Education
  - Driving
- Adult onset asthma

Allergic rhinitis – allergen triggers

- Pollen (tree, grass, weed)
- Seasonal outdoors
- ASCIA pollen calendar
- Dust mite
- perennial
- AM symptoms, indoor, triggered by sweeping, vacuuming, dust collecting environments, bed
- Pet dander
- Cat, dog, horse, rabbit, feathers
- Mould

Classification of Rhinitis

<table>
<thead>
<tr>
<th>Intermittent</th>
<th>Persistent</th>
<th>Moderate-severe</th>
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<tbody>
<tr>
<td>- &lt; 4 days per week</td>
<td>- 4 days per week</td>
<td>- 1 or more times</td>
</tr>
<tr>
<td>Mild</td>
<td>Normal sleep and</td>
<td>Abnormal sleep</td>
</tr>
<tr>
<td></td>
<td>no impairment of daily</td>
<td>Impairment of daily activities, sport, leisure</td>
</tr>
<tr>
<td></td>
<td>activities, sport, leisure</td>
<td>normal work and school</td>
</tr>
<tr>
<td></td>
<td>no troublesome symptoms</td>
<td>abnormal work and school</td>
</tr>
<tr>
<td></td>
<td></td>
<td>troublesome symptoms</td>
</tr>
</tbody>
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ASCIA Clinical Guidelines 2017

- Intermittent and mild
  - Intranasal corticosteroid spray*
  - +/- Other therapies (intranasal chronomes, intranasal antihistaminic sprays, leukotriene antagonists)
- Intermittent and moderate-severe
  - Oral non-sedating or intranasal antihistamines*
  - +/- Nasal saline irrigation
  - Allergic avoidance
  - Immuno therapy

In Summary

- INCS best first line choice across the board!
  - Both nasal and ocular symptoms
  - Topical antihistamine adjunct (eye, nose)
  - Oral non sedating antihistamine
  - not recommended for nasal symptoms but OK as an adjunct for eye or skin
Testing for IgE sensitization (previously known as RAST)

- THINK! – will it change my management
- SPT gold standard but serum IgE very good
- ONLY valuable in IgE mediated reactions
  - IgE – asthma, AR, anaphylaxis
  - AR, asthma – inhaled allergens (not food)
- SPT or IgE testing NOT indicated for non – allergic triggers (cig smoke, fumes, flowers, perfumes respiratory irritants, changes in temp, wind)
- NOT indicated for intolerances (IBS), non- specific rash, chronic spontaneous urticaria, *eczema headaches, fatigue, food additives

* Eczema is a disorder of skin barrier dysfunction – it is a risk factor for development of allergic disease best to ask for advice before ordering any allergy tests

Beware

Sensitization does NOT equal allergy

WHY order the tests?

- Can allergen be avoided (pets)
- Minimized or reduced (HDM)
  - Not expensive sheets and covers
  - Wash in hot water, use dryer, use freezer
- Consideration for immunotherapy - for those failing maximal medical management

What is immunotherapy? (i.e. can I just lick the cat?)

- Administration of specific allergenic protein over the course of 3-5 years to induce tolerance
- Specific protein amplified
- Aims to "turn off allergic drive and change the way the immune system responds to allergen"
- Tolerance induced by T reg cells found in high concentration in skin and under the tongue
- Benefit may begin in first few months but long duration needed to maintain tolerance
- Disease modifying: aim to reduce or alleviate symptoms