Asthma and Allergic Rhinitis
What is the Connection?

Hisham Khalil
Consultant ENT Surgeon
Clinical Senior Lecturer, PMS
Clinical Sub-Dean
GP Evening
25 June 2008
Plymouth

Derriford Hospital

Peninsula Medical School
Allergic Rhinitis and Asthma

- Definition
- Pathophysiology
- Diagnostic Approach
- Allergic Rhinitis and Asthma
- Treatment Strategies
- When is an ENT Referral Required?
- Discussion
Allergic Rhinitis

- A symptomatic disorder of the nose, induced after allergen exposure by an IgE-mediated inflammation of the nasal membrane
Asthma

- Asthma is a chronic inflammatory pulmonary disorder that is characterized by reversible obstruction of the airways.
Allergic Rhinitis - Epidemiology

- Affects 10-15% UK population
- Family atopic history common.
- Can develop at any age but 80% cases appear by age 20 years.
- Alters social life, affects school performance and work
Pathophysiology

Allergic Rhinitis

Asthma

Eosinophil infiltration

Nasal mucosa

Bronchial mucosa

Eos=eosinophils; neut=neutrophils; MC=mast cells; Ly=lymphocytes; MP=macrophages

Arachidonic Acid

- COX
  - Prostaglandins
- Lipoxygenase
  - Leukotrienes
Allergic Rhinitis

- **Intermittent**
  - < 4 days/week
  - <4 weeks

- **Persistent**
  - >4 days/week
  - and > 4 weeks

Mild/ Moderate-Severe
Intermittent Rhinitis

Common Allergens
- Grass pollens
- Tree pollens
- Weed pollens
- Mold spores

Symptoms
- Watery nasal drainage
- Nasal congestion
- Repetitive sneezing
- Itchy eyes, nose, ears, and throat
- Nose rubbing
- Allergic salute
Persistent Allergic Rhinitis

- No seasonal variation
- Symptoms continuous throughout the year
- Watery nasal drainage and sneezing less prominent
- Nasal congestion is often the primary symptom
Other Symptoms

- Dry irritated or sore throat
- Snoring
- Pain around eye
- Mouth breathing
- Orthodontic disturbances
- Frontal headaches/sinusitis
- Chronic cough
Other Symptoms

- Otitis media/ possible hearing loss
- Altered smell and/ or taste
- Sleep disturbance, with or without daytime fatigue
- Asthma exacerbation
General Symptoms

- Weakness
- Discomfort or uneasiness
- Irritability
- Fatigue
- Difficulty concentrating
- Decreased appetite
Diagnostic Approach
Diagnostic Approach

- History
- Examination
- Investigations
Examination
Flexible Nasendoscopy
Signs of Allergic Rhinitis
Signs of Allergic Rhinitis
Nasal Polyps
Rhinosinusitis
Allergic Rhinitis and Asthma

A One Airway Disease?
Allergic Rhinitis and Asthma

- Frequently overlapping conditions
- Involvement of the same tissues
- Common inflammatory processes
- Common inflammatory cells
- Common inflammatory mediators
Samter’s Triad

- Nasal polyps
- Asthma
- Aspirin sensitivity
- Preponderance of Leukotrienes in the nasal and bronchial mucosa
Investigations
Skin Tests
Other Investigations

- RAST
- Nasal Challenge
- Olfactory test
- Peak Inspiratory Nasal Air Flow
- CT Sinuses (d.d rhino-sinusitis)
CT Scan Sinuses
Treatment
Treatment Strategies

- Avoidance of Allergens
- Medical treatment
- Immunotherapy
- Surgery
Medical Treatment

- Antihistamines
- Decongestants
- Steroid nasal sprays
- Anticholinergic nasal sprays
- Antileukotrienes
H1 Receptor Blockers (A)

- Prevent action of histamine receptors
- Relieve runny nose, sneezing, itching.
- Do not control inflammation.
- Small effect on nasal congestion.
Systemic Decongestants

- Pseudo-ephedrine
- Work well for congestion, some for runny nose
- No effect on itching or sneezing
- Side effects: insomnia, increased activity, irritability
Topical Nasal Corticosteroids

- Reduce all nasal symptoms.
- Use at the lowest effective dose.
- Prolonged use > nasal dryness / epistaxis
Anticholinergic Sprays

- Ipratropium
- Effective for rhinorrhea
- Mainly used for non-allergic ‘autonomic rhinitis’
Antileukotrines

- Montelukast
- Second line in asthma/ rhinitis patients when oral steroids are ineffective
- Samter’s triad
- Decreased polyp recurrence
Stepped Approach
Mild Intermittent Symptoms

- Avoidance of allergens
- Oral antihistamines +/- decongestants
Persistent Mild to Moderate Symptoms

- Intranasal steroid starting therapy 1-2 weeks prior to season
- Non-sedating antihistamine and or decongestant as needed
- Topical ocular (eye) antihistamine with or without vasonconstrictor or topical eye mast cell stabilizer
Severe Symptoms

- Topical nasal corticosteroids
- Non-sedating antihistamine
- Short term burst of oral corticosteroids
Severe Symptoms

- Consider other treatments
  - Antileukotrienes
  - Immunotherapy
  - Surgery
# Allergic Rhinitis

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Intermittent Adults</th>
<th>Intermittent Children</th>
<th>Persistent Adults</th>
<th>Persistent Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral H1 antihistamines</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Intranasal corticosteroids</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Antileukotrienes</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Subcutaneous SIT</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Sublingual SIT</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Allergen avoidance</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>
When Is an ENT Referral Required?
ENT Referral

- Persistent nasal obstruction
- OSA
- Associated nasal pathology:
  * Hypertrophied inferior turbinates
  * Nasal polyps
  * Deviated nasal septum
Surgical Treatment
Turbinate Surgery

- Diathermy of Inferior turbinates
- Submucous Diathermy
- Turbinectomy
- Submucous conchopexy
Turbinate Surgery
Nasal Polypectomy
Septal Surgery
Septoplasty
Septoplasty
Septoplasty
Discussion

Presentation on

www.entplymouth.com