Allergic Rhinitis: Effects on Quality of Life and Co-morbid Conditions

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Objectives

• Be familiar with bothersome symptoms, impaired work productivity and quality of life with allergic rhinitis
• Understand the role of sleep impairment in allergic rhinitis
• Learn to recognize the co-morbidities of allergic rhinitis, such as conjunctivitis, sinusitis, increased respiratory infections, and asthma

Case Report

• JD is a 26 year old male who presents to my office with a history each spring of developing sneezing, nasal itching, and rhinorrhea.
• This spring, his symptoms are getting worse. For the first time he also stated that his eyes were watering and itching and noted the “whites” of his eyes getting red and puffy. He is experiencing headaches and “pain in the sinuses”

Case Report (cont.)

• He states that it has been hard to function at work as a computer programmer. Staring at the computer terminal has been difficult. He also reports having trouble falling to sleep and staying asleep all night.
• He likes to jog in the morning, but now he notices that he is coughing and wheezing which makes it difficult to do his normal 5K run.

Case Report (cont.)

• Review of Symptoms—he denies ear problems; he has been told that he snores during the spring
• Past History—He had had nasal symptoms each spring since first grade; mild eczema which he “outgrew” at the age of 8
• Family History—Mother with asthma, brother with allergic rhinitis
• Environmental History—Lives in house with wall to wall carpeting; no pets; no basement
• Non-smoker; does not live with any smokers

Disclosures

• Nycomed Pharmaceutical
• Sepracor Pharmaceutical
**JD’s Physical Examination**

- Eyes—Conjunctiva injected and swollen with increased eye tearing and lid swelling
- Nose—Turbinates very pale and swollen bilaterally with profuse serous drainage
- Ears—Normal
- Throat—Purulent post nasal drip
- Chest—Rare wheeze on forced expiration
- Skin—Clear

**Evaluation**

- Allergy skin prick tests: Positive to oak and pecan tree pollen
- CT scan sinuses: bilateral air fluid levels in the maxillary sinuses
- Spirometry: FEV₁ 85% of predicted with a 15% improvement in FEV₁ after bronchodilator
Allergic Rhinitis and Daily Life

Impact of Nasal Allergies on Daily Life

Q 31. During allergy season, would you say the condition impacted your daily life…? N=2,500

Allergies in America at www.myallergiesinamerica.com

Patient Feelings During Allergy Season: Symptoms Experienced Frequently

Impact on Mood: Allergic Rhinitis

Impact on Quality of Life: Allergic Rhinitis

Impact on Quality of Life: Allergic Rhinitis

*Germany, France, Italy, Spain and the United Kingdom.


**Impact on Work/School Productivity: Allergic Rhinitis**

- Loss of school productivity (n=379)
- WPAI Impairment Score
- Loss of work productivity (n=1397)

**Recent Allergy Interference: All AILA Countries**

- Difficulty falling asleep
- Waking up during the night
- Lack of a good night’s sleep

**Impact on Sleep Complaints: Allergic Rhinitis**

- Snoring
- Difficulty falling asleep
- Night-time awakening
- Early awakening
- Non-restorative sleep
- Lack of sleep

**Impact on Sleep Disorders: Allergic Rhinitis**

- Insomnia
- Severe insomnia
- Sleep apnea syndrome
- Hypersomnia
Consequences
- Symptom bother
- Mood changes
- Impaired quality of life
- Impaired work/school productivity
- Sleep disturbances

Co-morbidities
- Conjunctivitis
- Rhinosinusitis
- Respiratory infections
- Asthma

Allergic Rhinitis: 26%

Ocular Allergy Symptoms
- Redness
- Tearing
- Itching

Ocular vs. Nasal Symptoms: Frequency

Ocular vs. Nasal Complaints: How Bothersome?

Epidemiologic Association Between Allergic Rhinitis and Conjunctivitis

<table>
<thead>
<tr>
<th>Allergic Comorbidity</th>
<th>% of Conjunctivitis Patients</th>
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<tbody>
<tr>
<td>No other allergic manifestations</td>
<td>6</td>
</tr>
<tr>
<td>Asthma</td>
<td>1</td>
</tr>
<tr>
<td>Allergic rhinitis</td>
<td>66</td>
</tr>
<tr>
<td>Atopic eczema</td>
<td>0</td>
</tr>
<tr>
<td>Urticaria-angioedema</td>
<td>0.4</td>
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<tr>
<td>More than 1 allergic disease</td>
<td>27</td>
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Prevalence of Concomitant Conditions Experienced in the Previous Week by AR Sufferers

- Reporting of concomitant conditions were similar between adults and children with AR, with the exception of heartburn/GERD, which was reported nearly 5-fold more frequently in adults than in children.

- Multiple answers were permitted.
Acute Rhinosinusitis Is More Common in Patients With AR


AR Increases the Risk for and Duration of Respiratory Infections in Children


AR Increases the Risk for and Duration of Respiratory Infections in Adults

*P<0.001.

Prevalence of Asthma in Adults and Children With AR

- More children than adults with AR have been diagnosed with asthma or had asthma symptoms in the past 12 months

- Associations between childhood AR and asthma incidence from preadolescence to middle age and asthma persistence to middle age

- Data from 1968, 1974, and 2004 survey of the Tasmanian Asthma Study

Tasmanian Asthma Study

Asthma in Different Life Stages After the Age of 7 Years, Dependent on Childhood Allergic Rhinitis

<table>
<thead>
<tr>
<th>Age (y) at asthma onset*</th>
<th>Childhood allergic rhinitis</th>
<th>Never allergic rhinitis</th>
<th>Homogeneity test, P value</th>
<th>HR (95% CI)</th>
<th>HR (95% CI)</th>
<th>HR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;7-12, preadolescence</td>
<td>7.12 (3.97-12.75), P &lt; 0.001</td>
<td>1.00</td>
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<tr>
<td>&gt;12-20, adolescence</td>
<td>4.34 (2.09-8.64), P &lt; 0.001</td>
<td>1.00</td>
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<tr>
<td>&gt;20-44, adult life</td>
<td>2.19 (1.59-3.01), P &lt; 0.001</td>
<td>1.00</td>
<td></td>
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<tr>
<td></td>
<td>10.36*</td>
<td>1.00</td>
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</tbody>
</table>

HR = hazard ratio.

*There were 27 persons of the 2108 with a history of “asthma ever” for whom no age at onset of asthma could be determined and 1194 with asthma onset by age 7 years.

†Additionally adjusted for socioeconomic status, current smoking, and passive smoking at age 44 years.

European Community Respiratory Health Survey

- Longitudinal population-based study in 14 primary Western European countries
- Frequency of asthma development in 6461 participants from 20-44 yrs old over 8.8 years
- Incident asthma was defined as reporting ever having asthma confirmed by a physician
- Atopy by positive prick skin test


Cumulative Incidence Rate of Asthma

Cumulative incidence of asthma by year of follow-up in 3161 individuals in the control group, 704 who had atopy alone, 1377 who had non-allergic rhinitis, and 1217 who had allergic rhinitis.

Positive Skin Test and AR Increase the Risk for New Asthma at 23-Year Follow-Up

Patients Developing New Asthma (%)

Positive Skin Test and AR Increase the Risk for New Asthma at 23-Year Follow-Up

Summary

- Allergic rhinitis can impose multiple burdens on patients
  - Symptom bother
  - Mood changes
  - Impaired quality of life
  - Impaired work/school productivity
  - Sleep disturbances
  - Co-morbidities

- Treating the underlying pathophysiologic inflammation is the appropriate approach to relieve the symptoms and reduce the risk of consequences and co-morbidities in patients with upper respiratory disease