Cough Center Experience in Private Practice

Mandel Sher, MD, FAAAAAI

Center for Cough

Clinical Professor of Medicine and Pediatrics
Division of Allergy and Immunology
Morsani College of Medicine
University of South Florida
The case for Allergist to treat Chronic Cough

- Global approach to symptoms with multi-organ etiologies
  - Chronic rhinitis as a model system
  - Interplay of allergic/inflammatory, neuropathic, infectious and anatomic factors
- Established expertise in upper airway disease and asthma and role of GERD in respiratory disease
- Expertise in diagnostics tools
  - Skin testing, rhinoscopy, lower airway assessment
- Understand the model of neurogenic hypersensitivity
  - Neurodermatitis, pain amplification/fibromyalgia
If you have a **cough** that won’t go away, we can diagnose and effectively treat you.

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Chronic Cough Case

- 61 y/o non smoking female with ten years of continuous cough with onset after URI. Dry cough prompted by throat tickle and triggered by talking, scents/odors. Cough can induce incontinence. Feels socially isolated, anxious, and can be depressed. Family members and co-workers have expressed annoyance. Evaluated and treated by primary care MD, ENT, GI, Pulmonary and Allergy. Multiple diagnostic studies and unresponsive to multiple therapies.
The Key to Chronic Cough

• In the non smoker, without ACE inhibitors, and a normal chest x-ray
• UPPER AIRWAY COUGH SYNDROME
• COUGH VARIANT ASTHMA
• GERD

Irwin etal. Diagnosis and Management of Cough AACP Evidenced basedClinical Practice Guidelines. Chest. 2006; S1-S237

Outdated, 2013?
It’s the COUGH REFLEX Stupid!
Confessions of a Cough Doctor

- Chronic coughers have heightened Cough Reflex Sensitivity (CRS)
- CRS has variable inflammatory, neurogenic and behavioral components
- UACS, GERD, and asthma associated with chronic cough
  - Direct activation of cough
  - By increasing CRS
  - Innocent bystander
- Diagnostics studies-specificity/sensitivity?
Confessions of a Cough Doctor

• The recalcitrant chronic cougher (idiopathic) has Cough Hypersensitivity Syndrome, that is a heightened CRS

• Chronic coughers have variable expression:
  – CRS –inflammation, neurogenic and behavioral
  – UACS, GERD, asthma respiratory virus

• Diagnostic and Therapy is directed at identifying and treating all contributory factors
Confessions of a Cough Doctor

• UACS still most common symptom
  – Rhinoscopy – use a pediatric scope
  – Intranasal antihistamines may work
  – Chlorpheniramine but not non-sedating does work
  – “silent” UACS may not occur
• GERD/NERD common if not universal
  – Cough leads to distal LES dysfunction
  – Diet may be more important than PPI
  – All PPIs are not alike-variable responses
  – Therapy is not forever
Confessions of a Cough Doctor

- Asthma is uncommon
  - Low rate of NIOX elevations and abnormal PFT’s
  - Inhalers especially powders are irritating
  - Use MDI with spacers
- Narcotics do work
  - The effectiveness of “Tussionex”
- The power of oral corticosteroids
Chronic Cough
Oral corticosteroids

- Oral corticosteroids help turn off cough
  - In post-infectious cough
  - Variable in acute viral cough. More responsive in those with Cough Hypersensitivity Syndrome
- Is it treating CRS or underlying asthma, inflammatory bronchitis, inflammatory rhinitis?
- Dosing
  - In addition to other cough therapy
  - 30mg a day for 3 days, 20mg a day for 2 days, 10mg a day for three days
  - Longer, low dosed therapy may be needed (similar to neurodermatitis)
Break the Cough Cycle
Concurrent Therapy

- GERD- Diet +/- PPI
- UACS- INS, INA, chlorpheniramine
- Asthma/eosinophilic bronchitis if indicated
  - MDI ICS with spacer
- Cough suppression(neurogenic)
  - Pharmacologic- opiate, antihistamines, benzonatate
  - Exercises
- Cough inflammation
  - Oral corticosteroids
The Key to Chronic Cough Revised 2013

• In the non smoker, without ACE inhibitors, and a normal chest x-ray

• COUGH HYPERSENSITIVITY-inflamatory, neurogenic and behavioral

• UPPER AIRWAY COUGH SYNDROME- allergic rhinitis, vasomotor rhinitis, sinusitis

• GERD  
  *non acid reflux

• COUGH VARIANT ASTHMA  
  *non asthmatic eosinophilic bronchitis
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Table 1: Demographics

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>235</td>
</tr>
<tr>
<td>Gender</td>
<td>80% Female, 20% Male</td>
</tr>
<tr>
<td>Age (average)</td>
<td>61 y/o</td>
</tr>
<tr>
<td>Age, over 80 y/o</td>
<td>13%</td>
</tr>
<tr>
<td>Cough Duration: &gt; 10 years</td>
<td>41%</td>
</tr>
<tr>
<td>Cough Duration: &lt;1 years</td>
<td>20%</td>
</tr>
<tr>
<td>Past Smokers</td>
<td>22%</td>
</tr>
<tr>
<td>Past Smokers, &gt; 20 packs per year</td>
<td>85% (smokers)</td>
</tr>
</tbody>
</table>
Center for Cough Approach

• **History**
  – Reviewing previous records
  – Two page cough questionnaire

• **Cough assessment**
  – Leicester cough questionnaire
  – Verbal cough severity (scale 0-10)

• **Physical exam**
  – Laryngeal hyperfunction on expiratory phase
Chronic cough and social effects
Leicester Questionaire

• Social isolation
• Depression
• Anxiety
• Significant others expressing concern

• Center for Cough patients
  – Average 3.3 with scale 1-7 (no impairment)
Center for Cough Approach
Diagnostics

- Chest x-ray within two years
- Allergy skin tests
  - Cutaneous and selected intradermals
- Spirometry- pre and post bronchodilator
- NIOX(Mino)
- Rhinoscopy
Center for Cough Approach
Diagnostics

- Chest CT scan
- Sinus CT scan
- G.I. consult for EGD
- Pulmonary consult for abnormal CT scan
  - Bronchoscopy
- Immunology workup
Center for Cough Diagnoses

- Cough Hypersensitivity Syndrome/increased Cough Reflex Sensitivity (CRS) – 70%
- Upper Airway Cough Syndrome – 55%
- GERD – 53%
- Asthma – 13%
- NAEB – 3%
- Several with ACE inhibitor, bronchiectasis, lung cancer (abn. X-ray), CHF
Increased Cough Reflex Sensitivity

- Increased CRS occurs in $70\%$
  - without UACS, GERD, asthma or poor therapeutic response
- Probably multiple phenotypes of increased CRS (cough reflex sensitivity)
  - Neurogenic
  - Inflammatory
  - Behavioral
Chronic Cough
Cough Reflex Treatment

- Oral corticosteroids
  - Peripheral and central
- Opiates-central
- Classical antihistamines
  - Oral-central and peripheral
  - Intranasal-peripheral
- Benzonatate, menthol drops-peripheral
- Amitryptylline, gabapentin, pregabalin
- Speech therapy
  - Voice exercises
Center for Cough
Upper Airway Cough Syndrome

- Most common anatomic diagnosis
  - 57% (43/75) of all patients
- Aeroallergy skin tests
  - 40% positive skin tests in all patients tested 67/75
    - 35% positive in 60 tested at C4C
- 55% with positive skin test with diagnosis UACS
- Rhinoscopy
  - performed in 69/75 with 25% (19) positive findings
  - LPR -12, sinusitis- 4, VCD-2, polyps, vocal paresis
Rhinoscopy
Sinusitis
Laryngopharyngeal Reflux?
Chronic Cough
Rhinitis Treatment

• Nasal steroids
  – Allergic rhinitis (AR) and non allergic rhinitis (NAR)
• *Intranasal anti-histamines
  – Both for AR and NAR (helps congestion)
  – May be additive to nasal steroids
• Anti-histamines
  – AR only
    *Classical anti-histamines in chronic cough
• *Ipratropium bromide
  – NAR (rhinorrhea)
• Nasal saline
Center for Cough
GERD/NERD

• Common diagnosis seen in 53% (38/75)
  • Based on symptoms, studies and response to therapy
• Proximal vs Distal GERD/NERD as trigger/cause of cough?
  – Hoarseness, throat clear, and sore throat imply LPR
  – Microaspiration probably not common
    • Possibly in elderly?
  – Significance of rhinoscopic findings?
  – Distal vagal stimulation increasing CRS via GERD/NERD

GERD and Chronic Cough Diagnosis and Treatment

- Coughing decreasing with PPI and/or dietary therapy
- Response to PPI therapy may take months
- Not all PPI’s are alike and benefit from twice daily dosing
- PPI therapy should not be indefinite due to potential side effects and compliance
- Dietary therapy
Center for Cough Cough Asthma

- Diagnosis of Cough Asthma – 13% (10/75)
- Nitric Oxide (NIOX)
  - 10% (6/61) greater that 35 ppb
  - Increased in one asthma, Post infectious and two Non-asthmatic eosinophilic bronchitis
- PFT
  - 27% (17/63) had abnormal findings
  - 11/17 had reversible obstruction
  - Past smokers – 30% (5/17) had abnormal findings
- Therapy- inhalers(powder) irritate
Center for Cough Outcomes

• Outcomes based on improvement in Leicester Cough Questionaire/Global Cough Score(0-10)
  – Duration of follow-up was >6months in 85%
• Total and Significant improvement – 56%
• Total, Significant or Some Improvement – 77%
• No improvement – 8%
• No follow up- 15%
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