Current Approaches to Asthma & COPD

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Primary Care Medicine: Principles & Practice

Revisiting the Dutch Hypothesis: Back to 1960

Broad Look at Obstructive Lung Disease (OLD)

<table>
<thead>
<tr>
<th>Host factors</th>
<th>Environmental factors</th>
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<tbody>
<tr>
<td>Genetics</td>
<td>Smoking</td>
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<tr>
<td>Allergy</td>
<td>Pollution</td>
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<tr>
<td>Airway hyperresp.</td>
<td>Infection</td>
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Current Approaches to Asthma & COPD

1. Introduction
2. Diagnosis of Asthma & COPD
3. Management of Asthma & COPD
4. What’s New on the Horizon?
5. Questions?

Roadmap for the Talk

Diagnosis of Asthma & COPD

A 52 year old woman w/ HTN, HLD, obesity, and childhood asthma is coming in with shortness of breath. She smoked for a few years when in college, but otherwise has been a non-smoker. Her husband has smoked for the past 30 years and is trying to quit actively. She asks you whether this is her asthma coming back or whether she has COPD like her husband?

Important History Questions

Asthma
- Childhood asthma?
- Allergies?
- Triggers? (Pets, enviro?)
- Exercise-induced?
- Nocturnal sx?

COPD
- Smoking history?
- Asbestos exposure?
- Exercise tolerance?
- Quality of life?
- Exacerbation history?
Use a Structured Tool

- COPD Assessment Test (CAT)
- Administer in waiting room
- Score directly maps on to GOLD criteria
- Helps you Stage & Manage

PFTs: Low-Risk and High-Yield!

- When to just start empiric tx of asthma or COPD?
  - "Classic cases"

- For everyone else, PFTs are very helpful
  - Spirometry - FEV1, FVC, FEV1/FVC ratio - with bronchodilator response
  - Full PFT - Includes TLC & DLCO
**PFTs FAQs: Decoding the “Interpretation” Section**

**Interpretation:**

“The flow-volume loop is curvilinear, suggesting obstruction, but otherwise PFTs are normal.”

**Translation:**

Even though they may not meet exact criteria with FEV1/FVC < 70% for obstruction, the shape suggests they behave like they have mild obstructive lung dz, so you could treat for mild obstruction.

**Interpretation:**

“Symptoms of obstruction may be worsened when breathing at lower lung volumes due to obesity.”

**Translation:**

Even though they may not meet exact criteria with FEV1/FVC < 70% for obstruction, the shape suggests that they have obstructive-like symptoms (wheezing, dyspnea) when breathing on exertion, which is exaggerated due to obesity.

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**Key Point**

Don’t let the bronchodilator reversibility overly sway you. COPD pts can have some BD responsiveness, and asthma pts can show no responsiveness.

**Key Point**

All that wheezes is not asthma...nor COPD! Keep your ddx very broad and think outside the [lung] box.
Common Asthma & COPD Mimics - Can Delay Dx

- Vocal cord dysfunction
- Allergic bronchopulmonary aspergillosis
- Vasculitides such as Eosinophilic Granulomatosis with Polyangiitis
- Infections such as Strongyloides
- Decompensated CHF
- Obesity
- Bronchiectasis
- Occupational/enviro lung diseases
- Malignancy
- Interstitial lung disease

What about Reactive Airways Disease?

Pulmonary Perspective

"Reactive Airways Disease"
A Lazy Term of Uncertain Meaning That Should Be Abandoned

Different from Reactive Airways Dysfunction Syndrome -
Acute wheezing in response to inhaled irritant

Diagnostically, When to Refer? Anytime if:

- Basic diagnostics are not helpful (PFTs, Chest CT)
- You need advanced testing (e.g. methacholine/bronchoprovocation testing, exercise testing, bronchoscopy, etc.)
- You suspect an asthma/COPD mimic
- You just need extra diagnostic help!

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COPD Management Links Back to Dx: GOLD

COPD ABCs LAMA, LABA, Huh?

SABA = short-acting beta-agonist
SAMA = short-acting musc-agonist
LABA = long-acting beta-agonist
LAMA = long-acting muscarinic agonist
LABA/ICS = LABA + inhaled corticosteroid
Asthma Step-Up General Principles

Asthma Management Links Back to Sx: GINA

ASSESS CONTROL:

STEP UP IF NEEDED: High risk: medication adherence, inhaler technique, environmental control, and counseling

STEP DOWN IF POSSIBLE: Land asthma is well controlled for at least 3 months

STEP 1
STEP 2
STEP 3
STEP 4
STEP 5
STEP 6

ASSESS CONTROL: Repeat education, environmental control, and management of comorbidities.

Steps:

1. Consult with asthma specialists if there is low or high risk.
2. Consider consultation at step 3.
3. Low-dose ICS + LABA
4. Medium-dose ICS
5. High-dose ICS
6. LABA only
7. Consider referral for patients who have been non-adherent.

Asthma Management Plan:

- GINA guidelines for management.
- The treatment of step-up depends on the severity of symptoms: up to 3 treatments every 20 minutes as needed.
- Short courses of oral steroids (methylprednisolone 40 mg every 6 hours) are recommended.
- Options for patients who have had asthma exacerbations:
  - High-dose ICS + LABA
  - LABA only
  - Consider referral for patients who have had exacerbations.
Therapeutically, When to Refer? Anytime if:

- Severe asthma requiring ICU stay
- Uncontrolled asthma despite step-up therapy
- You are considering omalizumab or other IgE-mediated tx
- You suspect an asthma mimic

Key Point

ICU Admission for asthma and intubation are strong predictors for fatal or near-fatal asthma. These patients can die before they reach the hospital.

Key Point

Don’t forget non-pharm management: smoking cessation, pulmonary rehab, trigger avoidance, exercise, flu vaccine & Pneumovax.

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Targeting the Social Determinants of Asthma

NIH Grant: “Social adversities and asthma: A new phenotype?”

Dr. Neeta Thakur

Targeting the Link Between Obesity & Asthma

NIH Grant: “Role of Metabolic Dysfunction, the Gut Microbiome, in Driving Severe Asthma”

Dr. Michael Peters

Using Big Data to Target the Genomics of COPD

NIH Grant: “Identifying the Th2 endotype in COPD: Clinical and Pathological Implications”

Dr. Stephanie Christensen
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Thank You!
Questions?
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