Updates in the Management of Asthma and COPD
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Case 1

- 40yo F with a history of asthma, allergic rhinitis, nicotine dependence, and obesity comes to see you for a new patient transfer appointment. She is taking fluticasone 110mcg 1 puff BID, montelukast, and albuterol (as needed).
- In the past 4 weeks, she has had one night awakening per week, used her albuterol for breakthrough 3-4 times per week, and been more limited in her work as a caregiver. Her spirometry shows an FEV1 that is 70% predicted.
Question

- How would you describe this patient’s asthma and level of control?
  - Intermittent asthma, not well controlled
  - Mild persistent asthma, not well controlled
  - Moderate persistent asthma, well controlled
  - Moderate persistent asthma, not well controlled
  - Severe persistent asthma, well controlled
  - Severe persistent asthma, not well controlled
<table>
<thead>
<tr>
<th></th>
<th>Intermittent Asthma</th>
<th>Mild Persistent Asthma</th>
<th>Moderate Persistent Asthma</th>
<th>Severe Persistent Asthma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>&lt;2 days/week</td>
<td>&gt;2 days/week, but not daily</td>
<td>Daily</td>
<td>Throughout the day</td>
</tr>
<tr>
<td>Night Wakings</td>
<td>&lt;2/month</td>
<td>3-4/month</td>
<td>&gt;1/week</td>
<td>Often nightly</td>
</tr>
<tr>
<td>SABA Use</td>
<td>&lt;2 days/week</td>
<td>&gt;2 days/week</td>
<td>Daily</td>
<td>Multiple times per day</td>
</tr>
<tr>
<td>Lung Function</td>
<td>FEV1 &gt;80% predicted</td>
<td>FEV1 &gt;80% predicted</td>
<td>FEV1 &lt;80% predicted</td>
<td>FEV1 &lt;60% predicted</td>
</tr>
<tr>
<td>Treatment</td>
<td>SABA PRN (Step 1)</td>
<td>Low-dose ICS (Step 2)</td>
<td>Low-dose ICS + LABA, or Med dose ICS (Step 3)</td>
<td>Med dose ICS + LABA + omalizumab (step 4) + ICS + LABA + oral steroid + omaliz. (step 5)</td>
</tr>
</tbody>
</table>

Sxs >2x/wk or >2 nights/mo → PERSISTENT

Adapted from Asthma Care Quick Reference. www.NHLBI.nih.gov

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### Classification of Asthma Control

<table>
<thead>
<tr>
<th></th>
<th>Well Controlled</th>
<th>Not Well Controlled</th>
<th>Very Poorly Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>&lt;2 days/week</td>
<td>&gt;2 days/week</td>
<td>Daily</td>
</tr>
<tr>
<td>Night Wakings</td>
<td>&lt;2x/month</td>
<td>1-3 times/week</td>
<td>≥ 4x/week</td>
</tr>
<tr>
<td>SABA use</td>
<td>&lt;2 days/week</td>
<td>&gt;2 days/week</td>
<td>Several times per day</td>
</tr>
<tr>
<td>FEV1 or peak flow</td>
<td>&gt;80% predicted / personal best</td>
<td>60-80% predicted / personal best</td>
<td>&lt;60% predicted / personal best</td>
</tr>
<tr>
<td>Recommended Action</td>
<td>• Maintain current step treatment • Consider step down if well-controlled &gt;3mos.</td>
<td>• Step up 1 step • F/U in 2-6 weeks</td>
<td>• Consider short course PO steroid • Step up 1-2 steps • F/U 2 weeks</td>
</tr>
</tbody>
</table>

Adapted from Asthma Care Quick Reference. Available at: https://www.nhlbi.nih.gov/files/docs/guidelines/asthma_qrg.pdf
Treatment of Asthma

Beclomethasone (QVAR) MDI: 40mcg 1-3 puffs BID
Budesonide (Pulmicort Flexhaler) DPI: 90 mcg 1-2 puffs BID, or 180mcg 1 puff q day
Flunisolide (Aerospan) MDI: 80mcg 2 puffs BID
Fluticasone (Flovent) MDI, DPI: 44mcg/50mcg 1-3 puffs BID
Mometasone (Asmanex) MDI/DPI: 100/110mcg q day
Ciclesonide (Alvesco) MDI: 80mcg 1-2 puffs BID
### Treatment of Asthma

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beclomethasone (QVAR) MDI</td>
<td>80mcg</td>
<td>2-3 puffs BID</td>
</tr>
<tr>
<td>Budesonide (Pulmicort Flexhaler) DPI</td>
<td>180mcg</td>
<td>2-3 puff BID</td>
</tr>
<tr>
<td>Flunisolide (Aerospan) MDI</td>
<td>80mcg</td>
<td>3-4 puffs BID</td>
</tr>
<tr>
<td>Fluticasone (Flovent) MDI/DPI</td>
<td>110mcg/100</td>
<td>2 puffs BID</td>
</tr>
<tr>
<td>Mometasone (Asmanex) MDI/DPI</td>
<td>200/220mcg</td>
<td>1-2 puffs BID</td>
</tr>
<tr>
<td>Ciclesonide (Alvesco) MDI</td>
<td>160mcg</td>
<td>2-3 puffs BID</td>
</tr>
</tbody>
</table>

### Step 1

- No daily controller medication

### Step 2

- Low-dose ICS
  - Alternatives: cromolyn, LTRA, nedocromil, or theophylline
- SABA pm for quick-relief

### Step 3

- Either... medium-dose ICS + LABA
- Alternatives: low-dose ICS + LTRA, theophylline, or zileuton
- Low-dose ICS + LABA
- SABA pm for quick-relief

### Step 4

- High-dose ICS + LABA
- Consider omalizumab for patients with allergies

### Step 5

- Consider oral systemic steroids +}

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**Beclomethasone (QVAR) MDI:** 80mcg >4 puffs BID  
**Budesonide (Pulmicort Flexhaler) DPI:** 180mcg >4 puffs BID  
**Flunisolide (Aerospan) MDI:** 80mcg ≥5 puffs BID  
**Fluticasone (Flovent) MDI/DPI:** 220mcg/250 ≥ 2 puffs BID  
**Mometasone (Asmanex) MDI/DPI:** 200/220mcg 2-3 puffs BID  
**Ciclesonide (Alvesco) MDI:** 160mcg 3-4 puffs BID
LABAs - NEVER AS MONOTHERAPY!!!!!!
Salmeterol (Serevent Diskus) DPI: 50mcg BID
Formoterol (Foradil Aerolizer) DPI: 12mcg BID
incadacaterol (Arcapta) DPI: 75mcg q day

Combo ICS + LABA
Budesonide/formoterol (Symbicort) MDI: 80/160 + 4.5mcg - 2 puffs BID
Fluticasone/salmeterol (Advair Diskus, HFA) MDI, DPI: 100/250/500 + 50mcg 1 p
Mometasone/formoterol (Dulera) MDI 100/200 + 5mcg – 2 puffs BID

Asthma Control

- Check I-C-E
  - Inhaler technique
  - Compliance – study of pharmacy records – only 2.7% of patients considered adherent by pharmacy records!
  - Environmental exposures or triggers – skin testing or immunoassays
- Spirometry q1-2 years; more often if not controlled
- Patient education & self-management: asthma action plan
- Treat co-morbid conditions:
  - allergic bronchopulmonary aspergillosis,
  - gastroesophageal reflex,
  - obesity,
  - obstructive sleep apnea,
  - rhinitis and sinusitis, and
  - stress or depression

Inhaler Use

**MDI**
- **Method Tips:**
  - Hold upright, shake (prime PRN)
  - Exhale → in mouth → start to inhale → give puff → slowly inhale then hold breath 10s
  - Wait 1 min before repeating

**PROBLEMS:**
- Poor coordination → spacer
- Don’t hold breath
- Hand OA → haleraid
- Severe COPD w/poor flow → nebulized solution

**Diskus (DPI)**
- **Method:**
  - Open using thumb grip
  - Slide lever until CLICK to prep dose (hold level)
  - Slowly inhale over 10 s, hold breath 10s

**PROBLEMS**
- Not loading dose 1st
- Not breathing in forcefully enough

**TURBUHALER**
- **Method Tips:**
  - Take off cap
  - Rotate bottom cap forward and back until click
  - Keep upright
  - Exhale → breath in quickly and deeply → hold 10s → exhale

**COMMON PROBLEMS:**
- Not priming dose
- Not understanding dose counter (will sound like liquid inside).

**TWISTHALER**
- **Method:**
  - Remove cap (loads the dose!!)
  - Keep upright
  - Exhale → breath in quickly and deeply → hold 10s → exhale

**COMMON PROBLEMS**
- Not loading dose 1st
- Not breathing in forcefully enough

**AEROLIZER**
- **Method:**
  - Twist open the aerolizer
  - Insert capsule, close, & press side button
  - Inhale deeply, hold 10s
  - Repeat

**COMMON PROBLEMS**
- Not taking 2nd breath

**Handihaler**
- **Method:**
  - Open mouthpiece
  - Remove capsule & put in Chamber
  - Pierce w/green button
  - Reassemble
  - Slowly breath in so capsule vibrates
  - Repeat

**COMMON PROBLEMS:**
- Not taking 2nd breath

A word on adherence

- Qualitative study of patients with asthma about adherence
  - Perception that meds should only be used for symptoms
  - Fears of addiction or dependence
  - Fear of decreasing effectiveness of the medication over time
  - Preference for non-pharmacological approach
  - Preference to restrict daily activity than take medicine
  - Misunderstanding about diagnosis and disease severity
  - Good patient-physician relationship

Would it be ok if we talked about how things are going with your asthma treatments?

Many of my patients may not take their inhalers every day. Can you tell me a little about how you’ve been doing?

Is my patient controlled?

- 40yo F with a history of asthma, allergic rhinitis, nicotine dependence, and obesity comes to see you for a new patient transfer appointment. She is taking fluticasone 110mcg 1 puff BID, montelukast, and albuterol (as needed).
  - In the past 4 weeks, she has had one night awakening per week, used her albuterol for breakthrough 3-4 times per week, and been more limited in her work as a caregiver. Her spirometry shows an FEV1 that is 70% predicted.
- Moderate persistent asthma
- NOT well controlled (>2 x/week)
- On medium-dose ICS, leukotriene receptor antagonist (LTRA), and albuterol (Step 3)
- Plan
  - Check I-C-E
  - Step up therapy: Add LABA to medium dose ICS
Case 2

- 32yo M with a history of severe persistent asthma, allergic rhinitis, and DM presents for follow-up. He is taking fluticasone-salmeterol 500/50 mcg, montelukast, mometasone nasal spray, metformin and glipizide. He is a non-smoker.
- In the past 4 weeks, he has continued to use his albuterol 3-4 days per week and his activity is limited. He had one flare 3 months ago (ED visit).
- He can exhibit proper inhaler technique, has taken measures to control allergens in his home, and has worked with closely a health coach on adherence & disease self-management.

Case 2

- Which of the following is true of immunotherapy agents for treatment of severe asthma?
  - Mepolizumab is an anti-IgE monoclonal antibody
  - Mepolizumab has been shown to decrease asthma-specific mortality
  - Omalizumab is associated with a risk of anaphylaxis
  - Patient response to omalizumab should be evident after 1-2 injections
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Severe, Uncontrolled Asthma

- Definition severe asthma:
  - Asthma that requires treatment with high dose ICS + 2nd controlled (and/or systemic steroids) to prevent it from becoming uncontrolled
  - And 1 or more of the following:
    - Poor symptom control
    - 2 or more exacerbations in past year
    - Serious exacerbation (icu, hosp) in past year
    - FEV1 <80% predicted
- Prevalence: 5-10% of patients (~60% of costs)
- Approach
  - 1) Confirm Diagnosis
  - 2) Assess co-morbidities and contributory factors: rhinosinusitis, psychological factors, vocal cord dysfn, obesity, tobacco, OSA, GERD, Meds
  - 3) Phenotype
    - Early-onset allergic type
    - Later onset obese phenotype
    - Later onset eosinophilic phenotype

Chung KF et al. Eur Respir J. 2014 Feb;43(2):343-73
Omalizumab

- **Indications**
  - Moderate-severe persistent asthma
  - Not controlled with ICS
  - Serum IgE 30–700 IU/mL
  - Allergic sensitization (skin test or IgE to perennial allergen)

- **Mechanism of action**: anti-IgE monoclonal antibody

- **Dosing**
  - Subcutaneous injection every 2–4 weeks
  - Dose depends on body weight & serum IgE
  - 12 weeks required to see an effect

- **Side effects**
  - Anaphylaxis 1-2/1000 (black box)
    - Rx epinephrine auto-injector
    - Observe 2 hrs after 1st 3 injections

Omalizumab Efficacy

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Odds Ratio</th>
<th>Number of participants (# trials)</th>
<th>Absolute risk reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma exacerbation</td>
<td>0.55</td>
<td>3261 (10)</td>
<td>26 → 16% (16-60 weeks)</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>0.16</td>
<td>2889 (7)</td>
<td>3% → 0.5% (over 28-60 weeks)</td>
</tr>
<tr>
<td>Mortality</td>
<td>0.19</td>
<td>4245 (9)</td>
<td>Low quality; not signif.</td>
</tr>
</tbody>
</table>

Mepolizumab

- **Mechanism of action:** monoclonal antibody against IL-5, preventing it from binding to its receptor on the surface of eosinophils → decrease serum, marrow, and lung eosinophils
- **Physiology:** allergens or airway pollutants → activate Th2 helper lymphocytes → release IL-5, IL-13, and IL-14 → Increase eosinophils, IgE → airway inflammation and bronchial hyperresponsiveness
- **Evidence (RCT):**
  - DREAM (n=621) – 52% reduction in asthma exacerbations/year
  - SIRIUS (n=135) – median 50% reduction in oral steroid dose from mepolizumab
  - MENSA (n=576)

Mepolizumab

- **Randomized, double-blind, double dummy phase 3 RCT**
- **Patients (12-82yo, n=576):**
  - FEV1 <80% (adult) or FEV1 <90% (<18)
  - 1 of the following: FEV1 reversibility >12%, + methacholine challenge, FEV1 variability (>20%) in past 12 mos
  - 2 exacerbations in past year tx’d w/steroids
  - High dose ICS (>880ug fluticasone)
  - Eosinophils >150/uL or >300/uL in past year
- **Treatment:** mepolizumab IV or SC q4 weeks for 32 weeks

Mean number of exacerbations: 1.74 (placebo) v. 0.83 (mepolizumab subcu)*


COPD
Case

- 56yo F with a history of nicotine dependence, COPD, and diabetes presents to urgent care. Her last PFTs were 2 years ago and showed an FEV1/FVC of 63% and a FEV1 of 50% predicted.
- She is having wheezing, shortness of breath, cough productive of yellow sputum, and fatigue. She has been using tiotropium daily and QVAR inhaler, plus her albuterol inhaler.
- Vitals are notable for an O2 saturation of 93%. She is able to speak in full, but short sentences. Exam is notable for diffuse, expiratory wheezing and rhonchous breath sounds.

Case

- Which of the following represents the best course of management for this patient’s COPD exacerbation?
  - Prednisone 40mg PO q day x5 days
  - Prednisone 60mg PO q day x4 days, then titrate down dose for total course of 10-14 days
  - Prednisone 60mg PO q day x10-14 days
  - Prednison 40mg PO q day x14 days
Case

Which of the following represents the best course of management for this patient’s COPD exacerbation?

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- Prednisone 60mg PO q day x4 days, then titrate down dose for total course of 10-14 days
- Prednisone 60mg PO q day x10-14 days
- Prednison 40mg PO q day x14 days

The REDUCE Trial

- Subjects: patients presenting with COPD exacerbations at ER for 5 Swiss teaching hospitals
- Design: randomized, controlled non-inferiority trial: prednisone 40mg po q day for total 5 days versus prednisone for 14 days (+ usual care)
- Primary endpoint: time to next COPD exacerbation during a follow-up interval of 6 months

The REDUCE trial

Table 2. Results for the Primary End Point

<table>
<thead>
<tr>
<th>Primary End Point</th>
<th>Event Frequencies, No. (%)</th>
<th>Conventional Treatment (n = 155)</th>
<th>Short-term Treatment (n = 156)</th>
<th>Hazard Ratio (90% CI)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reexacerbations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention to treat</td>
<td>57 (36.8)</td>
<td>56 (35.9)</td>
<td>0.95 (0.70-1.29)</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>Per protocol</td>
<td>57 (38.3)</td>
<td>54 (36.7)</td>
<td>0.93 (0.66-1.26)</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td>Subgroup analyses&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOLD grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 and 2&lt;sup&gt;c&lt;/sup&gt;</td>
<td>6 (33.3)</td>
<td>6 (28.1)</td>
<td>0.73 (0.28-1.88)</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>3&lt;sup&gt;c&lt;/sup&gt;</td>
<td>19 (35.9)</td>
<td>15 (33.3)</td>
<td>0.93 (0.52-1.67)</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>4&lt;sup&gt;c&lt;/sup&gt;</td>
<td>31 (39.7)</td>
<td>34 (40.5)</td>
<td>0.99 (0.66-1.49)</td>
<td>.04</td>
<td></td>
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<tr>
<td>Glucocorticoid pretreatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13 (46.4)</td>
<td>16 (45.7)</td>
<td>0.93 (0.50-1.72)</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>44 (35.8)</td>
<td>40 (33.3)</td>
<td>0.88 (0.61-1.26)</td>
<td>.005</td>
<td></td>
</tr>
</tbody>
</table>

*Median time to re-exacerbation during follow-up = 43 d (5d group) v. 29 d (convent)

Step Therapy for COPD

I: Mild                      
- FEV<sub>1</sub>/FVC < 0.70  
- FEV<sub>1</sub> > 80% predicted

II: Moderate
- FEV<sub>1</sub>/FVC < 0.70  
- 50% ≤ FEV<sub>1</sub> < 80% predicted

III: Severe
- FEV<sub>1</sub>/FVC < 0.70  
- 30% ≤ FEV<sub>1</sub> < 50% predicted

IV: Very severe
- FEV<sub>1</sub>/FVC < 0.70  
- FEV<sub>1</sub> < 30% predicted or FEV<sub>1</sub> < 50% predicted plus chronic respiratory failure

Active reduction of risk factor(s), influenza vaccination  
Add short-acting bronchodilator (when needed)  
Add regular treatment with one or more long-acting bronchodilators (when needed), Add rehabilitation  
Add inhaled glucocorticosteroids if repeated exacerbations

LABA  
LABA + ICS, or LAAC  
LABA + ICS + LAAC

Case 2

- 55yo M with a history of childhood asthma, CAD, HTN, nicotine dependence, allergic rhinitis, and obesity here to establish care. He notes some decreased exercise tolerance with tightness in his chest and cough in the AM.
- He is taking aspirin, benazepril, nasal fluticasone, albuterol, and atorvastatin.
- Spirometry shows and FEV1/FVC of 65% and an FEV1 60% predicted with 15% reversibility after albuterol administration.

Case 2

- Which of the following treatments would result in the best outcome for this individual?
  - Initiate an inhaled corticosteroid plus a long-acting beta-agonist
  - Initiate a long-acting anti-cholinergic
  - Chronic supplemental oxygen therapy
  - Treatment of his nicotine dependence
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- Which of the following treatments would result in the best outcome for this individual?
  - Initiate an inhaled corticosteroid plus a long-acting beta-agonist
  - Initiate a long-acting anti-cholinergic
  - Chronic supplemental oxygen therapy
  - Treatment of his nicotine dependence

Smoking Cessation

- ~18% of Americans currently smoke (42 million people)
- Smoking is the leading cause of preventable death & is involved in 1/5 deaths
- Smoking still kills
  - Cohort study of >200K adults via the Natl Health Interview Survey (NHIS) between 1997-2004
  - Hazard ratio for mortality: 3 (women), 2.8 (men)
  - For current smokers, survival was shortened by 11 years for women and 12 years for men
  - Age you quit effects years life expectancy gained:
    - Quit age 25-34: survival curves identical to nonsmokers
    - Age 35-44: gain 9 years
    - Age 45-54: gain 6 years
    - Age 55-64: gain 4 years


www.cdc.gov: Smoking & Tobacco Use
Asthma COPD Overlap Syndrome (ACOS)

**Definition:**
- persistent airflow limitation with several features usually associated with asthma and several features usually associated with COPD.


The Role of ICS in COPD Management

- Added for persistent symptoms or exacerbations despite use of long-acting bronchodilators. Most benefit if FEV1 <50% predicted
- Ample evidence for decrease in exacerbations; no mortality benefit (TORCH 2007)
- What about asthma-COPD patient?
  - Population-based longitudinal cohort study in Canada (2003-2011) following matched COPD patients >66yo either started on LABA or LABA-ICS
  - New use of LABAs + ICS associated with a modestly reduced risk of death or COPD hospitalizations compared with LABA alone
    - 3.7% difference at 5 years
    - Greatest difference seen in patients with a co-diagnosis of asthma (6.5%) or not on a long-acting anti-cholinergic
  - **Bottom line:** asthma phenotype → ICS

ICS in COPD: Can We Consider Stepping Down Treatment?

The WISDOM Trial

- **Design:** multinational, randomized, double-blind parallel group study
- **Who:** patients with severe or very severe COPD (GOLD stage 3 – 60% and 4 – 40%), 1 exacerbation in past year
- **Intervention:**
  - 6 week run-in: all get tiotropium, salmeterol, and fluticasone 500mcg BID, then
  - Randomized to glucocorticoid withdrawal (tapered over 6 weeks) or continuation
- **Primary endpoint:** time to 1st moderate or severe COPD exacerbation (prescribed meds or ER/hosp visit)
- **Follow-up:** 1 year


WISDOM Trial

- **Outcome:** hazard ratio for first moderate/severe exacerbation was 1.06 (CI 0.94-1.19).
- Non-inferiority cut-off set at 1.2
- FEV1 decreased significantly
- **Bottom line:** on maximal BD therapy, ICS may not be crucial for prevention of exacerbations.
  - Cont ICS if evidence of symptomatic or spirometric improvement WEIGHED with risk of ICS side effects.

Additional Updates on Prevention

- CHEST guidelines on prevention of re-exacerbation in COPD patients at-risk
  - Recommended
    - Annual influenza vaccine
    - Pulmonary rehab within 4 weeks of hospitalization
    - Education and case management with monthly follow-up (educ + action plan WITHOUT case mngmnt does NOT prevent repeat visits to ER/hospital)
    - Pharmacotherapies: LABA, LAMA, ICS
  - Suggested
    - Pneumococcal vaccine
    - Smoking cessation
    - Long-term macrolides
  - Not recommended
    - Systemic corticosteroids
    - Statins


Azithromycin

- CHEST guidelines:
  - For patients with moderate to severe COPD, who have a history of one or more moderate or severe COPD exacerbations in the previous year despite optimal maintenance inhaler therapy, we suggest the use of a long-term macrolide to prevent acute exacerbations of COPD (Grade 2A).
  - This recommendation places high value on the prevention of COPD exacerbations. However, clinicians prescribing macrolides need to consider in their individual patients the potential for prolongation of the QT interval and hearing loss as well as bacterial resistance. The duration and exact dosage of macrolide therapy are unknown.
  - Who benefitted the most in the azithro study (exclusion criteria: hearing impaired, prolonged QT or on meds, resting tachycardia):
    - Non-smokers
    - >age 65
    - Milder COPD GOLD stage

Assessment of asthma severity and level of control is important for determining appropriate treatment.

Poor adherence to inhaler treatment is a common cause of uncontrolled disease.

Given the complexity of inhaler types, consider referral for nurse of pharmacist education. For motivated patients, there are several on-line tutorials.

Patient with moderate-severe asthma, not well controlled, with elevated serum IgE may be candidates for omalizumab.

Mepolizumab is a monoclonal antibody against IL-5 FDA-approved for treatment of severe eosinophilic asthma.

Summary

Acute COPD exacerbations can be treated effectively with prednisone 40mg po x5 days.

Smoking cessation treatment should be prioritized for patients with COPD.

In patients with asthma-COPD overlap syndrome (ACOS), or asthma-phenotype symptoms, consider early introduction of an inhaled corticosteroid (ICS) as a controlled med.

For stable patients with COPD on an ICS, you can consider tapering off the ICS if risks outweigh benefits (WISDOM trial).

Azithromycin is an option for preventing disease flares in COPD, but the risks of QTc prolongation, hearing loss, and bacterial resistance need to be considered.
Disclosures

I have nothing to disclose