Updates in COPD
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January 30, 2019

Disclosures
• None

Talk Objectives
By the end of this talk you should be able to:
1. Discuss 3 nonpharmacologic treatment strategies for stable COPD patients
2. Understand and apply GOLD staging-based pharmacotherapy principles to COPD patients
3. Discuss treatment of COPD exacerbation
4. Recognize common COPD comorbidities, including the asthma-COPD overlap syndrome

Outline
• Definition
• Diagnosis/ Assessment
• Management of Stable Disease
• Management of Exacerbations
• Comorbidities

Definition of COPD
• Persistent respiratory symptoms
  • Need to account for sedentary lifestyle
• Chronic airflow limitation
  • Airways disease
  • Parenchymal destruction
• Caused by exposures/ genetics
  • Tobacco (>10 pack years)
  • Biofuel burning-related air pollution
  • Alpha-1 Antitrypsin deficiency (mean age 46 +/- 11, basilar disease, liver disease, FH of COPD/ liver disease)

Diagnosis of COPD
• FEV1/FVC ratio < 0.70
  • Overdiagnosis in older patients
  • Possible underdiagnosis in younger patients
• Lower limit of normal for FEV1/FVC ratio
• Re-testing patients with suggestive history and symptoms with FEV1/FVC ratio 0.7-0.8
Diagnosis of COPD

Management of Stable COPD

- Smoking cessation
  - Uncertain role of e-cigarettes

- Vaccination
  - Annual influenza
  - PPSV23 if COPD, age <65 and FEV1 <40% or sig comorbidities
  - PCV13 and PPSV 23 for all patients ≥65

- Pharmacotherapy based on symptom burden and exacerbation history/risk:

Assessing COPD Symptom Burden

Pharmacotherapy of COPD
Pharmacotherapy of COPD

- **Roflumilast**
  - 
  - PDE4 inhibitor
  - Consider in patients with FEV1 <50%, chronic bronchitis, frequent exacerbations

- **Macrolides**¹
  - Azithromycin 250-500mg MWF for 3-12 months
  - Former smokers (not active) with frequent exacerbations
  - Cardiac risk, ototoxicity, and resistance are considerations

- **Mucolytics**
  - (guaifenesin, N-acetylcysteine)
  - Poor quality data to support regular use but possible individualized role in patients with copious sputum production and frequent exacerbations

Management of Stable COPD

- **Oxygen Therapy:**
  - PaO2 ≤ 55mmHg or SaO2 ≤ 88% at rest
  - PaO2 55-60 mmHg or SaO2 ≤ 88% at rest IF also w pHTN, cor pulmonale, erythrocytosis

- **Goal SaO2 ≥ 90%**

- **Uncertain benefit in patients with only exertional desaturation (LTOT trial) and nocturnal desaturation (INOX trial)**
  - Not included in GOLD recommendations
  - Expert consensus suggests individualized approach

Management of Stable COPD

- **Education**
  - COPD Action Plan
  - Advanced directive / Palliative strategies (GOLD C, D)

- **Pulmonary rehabilitation / Regular exercise**
  - 60-80% max effort (BORG scale 4-6)
  - Combination interval training with strength training
  - Increased activity by as little as 600 steps/day¹

- **Surgical considerations**
  - Bullectomy / Lung volume reduction → refer
  - Valves / Coils → select pts, no high-quality data yet
  - Transplantation → refer

- **Noninvasive ventilation**
  - Patients with OSA overlap syndrome
  - Patients with significant hypercapnia (awake PaCO2 ≥ 52 mmHg) AND nocturnal SaO2 ≥ 88% for ≥ 5 cumulative min
  - Patients with hypercapnia (awake PaCO2 > 53 mmHg) following hospital admission for COPD exacerbation¹
COPD Exacerbation Management

• Rule out comorbidities: ACS, CHF, Pneumonia, Pulmonary embolism (16% prevalence in COPD exacerbation!)

• Utilize short-acting bronchodilators (though no RCT evidence)

• Systemic steroids- no more than 40 mg for no more than 5-7 days without tapering

• Antibiotics when indicated, for 5-7 days
  • Increased sputum purulence
  • Need for maintenance or invasive mechanical ventilation

• Procalcitonin guidance?

Leuppi JD et al. JAMA 2013.

Supplemental oxygen to achieve saturation 88-92%, avoid over-oxygenation

NIV for hospitalized patients w/ increased work of breathing and/or worsened hypercarbia (PaCO2 >45 mmHg AND pH ≤ 7.35)

Caution against overly pessimistic attitude toward intubation of COPD patients → better ICU survival than other causes of resp failure

Close followup and rehabilitation

Leuppi JD et al. JAMA 2013.

COPD Comorbidities

• Cardiovascular disease
  • CHF
  • Ischemic disease
  • Arrhythmia
  • PVD
  • HTN

• Osteoporosis

• Anxiety / depression

• GERD

• Lung cancer

• Bronchiectasis

• Pulmonary hypertension

• OSA

• Nontuberculous mycobacterial infection

Asthma-COPD Overlap

• Up to 1/3 COPD patients may have asthma features

• Definition still murky:
  • FEV1 bronchodilator response on PFT >200mL / 12%
  • Clinical asthma history
  • Blood eosinophilia ≥ 300 cells/μL

• Worse outcomes than patients with either disease alone


Talk Summary

• Nonpharmacologic treatment for stable COPD
  • Smoking cessation
  • Vaccination
  • Exercise
  • O₂ for resting hypoxemia
  • NIV for OSA-COPD overall or chronic hypercapnia
  • Education: Action Plan, End-of-life

• Pharmacotherapy for stable COPD- based on sx burden/ exacerbation risk
  • Low risk / mths ⇒ SAMA or SABA or LAMA or LABA
  • Low risk / yrs ⇒ LABA or LAMA
  • High risk / low sx ⇒ LAMA
  • High risk / more sx ⇒ LAMA, LAMA + LABA, or LABA + ICS
Talk Summary

- Treatment of COPD exacerbation
  - Recognize and treat for common comorbidities (e.g., PE)
  - SABA +/- SAMA
  - Prednisone no more than 40 mg for no more than 5-7 days
  - Short course ABX in specific circumstances
  - NIV if significant hypercapnia

- Common COPD comorbidities
  - Bronchiectasis
  - OSA
  - Pulmonary HTN
  - Nontuberculous mycobacterial disease
  - Asthma overlap (1/3 of COPD pts)

Bibliography

- Leuppi JD et al. JAMA 2015;313(2):2213-2223.