Chronic Obstructive Pulmonary Disease: Global Strategy for the Diagnosis, Management, and Prevention of COPD, 2020 Report

About the Guideline

- Global Initiative for Chronic Obstructive Lung Disease (GOLD) began work on COPD guidelines in 1998.
- The goal was to develop unbiased guidelines for evidence-based care of the patient with COPD. The GOLD Scientific Committee was formed in 2001 and is made up of leading experts from around the world.

Key Clinical Considerations

Become familiar with the recommendations and best-practice statements provided in this guideline, especially if you work in an acute care setting.

Definition and Key Points

- Chronic obstructive pulmonary disease (COPD) is a treatable, common disease characterized by persistent airflow limitation and respiratory symptoms developed from significant exposure to noxious particles or gases that cause airway and alveolar abnormalities.
- The most common symptoms are productive cough and dyspnea, which patients generally underreport to healthcare practitioners.
- Risk factors for COPD include air pollution and tobacco smoking, genetic abnormalities, accelerated aging, and abnormal lung development.
- Patients with COPD can experience exacerbations of the disease.
- Morbidity and mortality is increased when COPD is associated with other chronic diseases.
- COPD is currently the fourth leading cause of death in the world. COPD is preventable and treatable.

Diagnosis and assessment

- Patients tend to underreport symptoms. COPD should be considered if the patient has any of the following symptoms:
  - Dyspnea (progressive over time, worse with exercise, persistent)
  - Chronic cough (may be intermittent with progression to daily, may be non-productive or productive)
  - Chronic sputum production of any pattern (progressive over time, worse with exercise, persistent)
  - Chest tightness and wheezing
- Suspect COPD in patients with the above symptoms and the following medical history:
  - Recurrent lower respiratory tract infections
  - COPD risk factors (genetic, congenital, exposure to tobacco smoke, smoke from home cooking and heating fuels, and occupational exposures)
  - Presence of comorbidities such as osteoporosis or cardiovascular disease
  - Family history of COPD
Other childhood experiences such as low birth weight and childhood respiratory infections

- Certain comorbid conditions may be mistaken for COPD. These conditions include:
  - Asthma
  - Heart failure
  - Bronchiectasis
  - Tuberculosis
  - Obliterative bronchiolitis
  - Diffuse panbronchiolitis

- In addition to an assessment of the patient's physical symptoms (using the COPD Assessment Test [CAT™] and/or the patient's dyspnea scale using the modified Medical Research Council [mMRC] questionnaire), spirometry is required to make the diagnosis of COPD.
- Spirometry readings, assessment of symptoms, and history of exacerbations (moderate-severe) are required to determine the severity of COPD. The Refined ABCD assessment tool provides information about symptom burden and risk of exacerbation, which can be used to guide therapy.
- All patients and their family members should be screened for alpha-1 antitrypsin deficiency (AATD), especially in areas with high prevalence of AATD.
- Chest X-ray and computed tomography are not useful to diagnose COPD, but can exclude other respiratory, cardiac, and skeletal diagnoses.

**Prevention and maintenance therapy**

- Smoking cessation is important in both the prevention and maintenance of COPD. Nicotine replacement therapy and pharmaceutical products are more effective than placebo and increase smoking abstinence and cessation rates.
- Influenza and pneumococcal vaccinations are recommended to reduce serious illness, death, bacteremia, and serious invasive pneumococcal disease in COPD patients.
- Medications can reduce symptoms in stable COPD, decreasing the number and severity of exacerbations, and improving health and exercise tolerance.
  - Bronchodilators are commonly given for symptom prevention and management.
  - Antimuscarinic drugs improve forced expiratory volume.
  - Methylxanthines are controversial as nonselective phosphodiesterase inhibitors.
  - Combination bronchodilator therapy may increase bronchodilation with fewer side effects, compared to higher doses of a single bronchodilator.
  - Long-acting beta2-agonists (LABAs) and long-acting muscarinic agents (LAMAs) reduce exacerbation rates and significantly improve lung function; combination LABA and LAMA therapy is more effective than monotherapy. Tiotropium can improve exercise performance and pulmonary rehabilitation.
  - Theophylline has modest bronchodilator effects.
- The best inhaler is one that the patient will use correctly. Technique should be assessed and reinforced regularly.

- Additional recommendations:
  - Pulmonary rehabilitation
  - Long-term oxygen as indicated
  - Consider:
    - Noninvasive ventilation (NIV) for acute respiratory failure
    - Surgical/bronchoscopic interventions with advanced emphysema
Management of stable COPD

- Continue efforts to achieve smoking cessation and the reduction of exposure to noxious inhalants.
- Long-term use of monotherapy with inhaled corticosteroids (ICS) is **NOT** recommended, but in treating patients with prior exacerbations who have an eosinophil count greater than 300 cells/μL, the use of ICS combined with a LABA is more effective than individual medications.
  - Oral glucocorticoids are **NOT** recommended.
- Other medications that may decrease exacerbations are phosphodiesterase-4 (PDE4) inhibitors along with a LABA, either with or without a LAMA. In former smokers, consider macrolides such as azithromycin and the use of roflumilast in patients with an FEV1 less than 50%.
- Alpha-1 antitrypsin augmentation therapy may be used for patients with AATD.
- Nonpharmacologic therapy includes:
  - Education
  - Self-management
  - Pulmonary rehabilitation
  - Vaccination
  - Nutritional support
  - End-of-life/palliative care
  - Long-term oxygen therapy
  - Noninvasive ventilation
  - Interventional bronchoscopy and surgery

Management of exacerbations

- The most common cause of a COPD exacerbation (acute worsening of symptoms) is a respiratory tract infection.
- First-line treatment is a short-acting beta₂-agonist (SABA), followed with a LABA.
  - Treatment with systemic corticosteroids and antibiotics (if necessary) should last no longer than 5 to 7 days.
  - Use of supplemental oxygen is appropriate in patients who are hypoxemic; titrate to maintain SpO2 between 88% and 92%.
  - For patients who need mechanical ventilation, noninvasive ventilation (NIV) should be considered over intubation.
- Follow-up within 1 month after hospital discharge is recommended and should include:
  - Review of all laboratory/clinical data
  - Maintenance therapy and inhaler technique
  - Tapering or discontinuation of medications
  - Management of comorbid conditions
- Additional follow-up is recommended at 3 months. The need for long-term oxygen therapy can be better assessed.

Comorbidities

- Other diseases coexist with COPD, such as:
  - Lung cancer
  - Heart failure
• Ischemic heart disease
• Arrhythmias
• Peripheral vascular disease
• Hypertension
• Osteoporosis
• Depression
• Anxiety
• Obstructive sleep apnea
• Diabetes
• Gastroesophageal reflux

• Usually these diseases do not change COPD treatment, but the treatment of these diseases should be considered in the complexity of the overall care of the patient with COPD.

Reference: