

Guidelines for COPD Management
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Obstructive lung disease caused by:

- * Chronic bronchitis
- * Emphysema

- * 32 million people in the US (5-8% of adults)
- * 4th leading cause of death
- * Male:female ratio 4-5:1
- * Symptoms rarely start before age 40

Signs and symptoms

Early COPD is silent, symptoms mean significant damage is present and will likely progress once they appear

- * Chronic cough
- * Mucous production
- * Dyspnea on exertion
- * Wheezing
- * Frequent respiratory infections
- * Right heart failure

Diagnosis

Spirometry- “gold standard”

- * Shows obstruction before symptoms appear
- * Can be used to track progression & treatment

History and physical can suggest COPD

- * History of lung damage
- * Barrel chest, wheezing
- * Chest X-ray/CT

Certain findings consistent with COPD

Find other causes for symptoms

Spirometry

- * Defining feature of COPD is irreversible airflow obstruction during expiration
- * Loss of elastic recoil
- * Increased resistance of airways
- * May have some improvement with bronchodilator if they have COPD with an asthma component
- * Important measures for COPD are decrease in FEV1 and ratio of FEV1/FVC

GOLD-Classification of severity

Stage I- Mild

FEV1/FVC <70%, FEV1 \geq 80% predicted

Stage II- Moderate

FEV1/FVC <70%, FEV1 50-80% predicted

Stage III- Severe

FEV1/FVC <70%, FEV1 30-50% predicted

Stage IV- Very Severe

FEV1/FVC <70%, FEV1 <30% predicted or 30-50% predicted plus chronic respiratory failure

Other findings on PFTs

- * FVC- reduced or normal
- * TLC- increased or normal
- * RV- increased
- * Diffusing capacity- normal or reduced

Utilization of spirometry

- * Infrequently used nationwide
- * Multiple organizations have made recommendations
- * Multiple studies of use:
 - For a smoker with chronic cough- 22%
 - Veterans at time of diagnosis of COPD- 30%
 - 33% with diagnosis of COPD ever had spirometry
 - Less likely in women and elderly

Physicians surveyed-

70% claimed to use spirometry to diagnose COPD

Treatment of COPD

Damage is irreversible, so treatment involves preventing further damage and symptom control

- * Smoking cessation
- * Meds
- * O₂
- * Surgery
- * Pulmonary rehab
- * Prevention of exacerbations

Drug therapy

Bronchodilators and steroids

- * Control symptoms
- * Decrease exacerbations
- * Increase exercise capacity
- * Improve quality of life
- * Do not modify disease
- * Do not reduce mortality

Bronchodilators

β-agonists

- * Short-acting (albuterol)
- * Long-acting (salmeterol, formoterol, etc.)

Anticholinergics

- * Short-acting (ipatropium)
- * Long-acting (tiotropium)

Theophylline

Beta-agonists

Short-acting

- * Albuterol, levalbuterol, pirbuterol
- * Rapid onset of action
- * Should be prescribed to all symptomatic pt's

Long-acting

- * Salmeterol (Serovent), formoterol (Foradil), arformoterol (Brovana)
- * BID dosing

Anticholinergics

Short-acting

- * Ipratropium (Atrovent)
- * Rapid onset of action
- * Similar efficacy to albuterol

Long-acting

- * Tiotropium (Spiriva)
- * Once daily dosing

Theophylline

- * Oral bronchodilator
- * Least preferred option
- * Effects are modest
- * Toxicity, multiple drug interactions
- * Need to monitor levels
- * Recommended only as an add-on when symptoms continue despite maximal therapy

Steroids

Inhaled- slow-acting

- * Pulmicort, Azmacort, Asmanex, Flovent, etc.
- * Less side effects
- * Infections, hoarseness
- * Reduced by rinsing mouth

Systemic- fast-acting

- * Good for acute exacerbations
- * Not recommended long-term
- * Significant side effects
- * Increased morbidity and mortality

Combination drugs

Combivent, Duoneb

- * Albuterol + Ipratropium
- * Achieve greater bronchodilation than alone

Advair

- * Fluticasone + Salmeterol

Symbicort

- * Budesonide + Formoterol

New Guidelines

“Diagnosis and Management of COPD: A Clinical Practice Guideline from the American College of Physicians.” 6 Nov 2007. Qaseem et al.

Reviewed studies relating to tests and treatments for COPD published between 1966 and March 2007

Excluded those with alpha-1 antitripsin, asthma, and restrictive lung disease

Findings of study

- * History and clinical examination are poor predictors of airway obstruction & severity
 - * Adding spirometry is very useful, especially in setting of dyspnea
- * Best factors to exclude COPD are lack of wheezing and history of smoking
- * Compared to short-acting inhalers, inhaled steroids and long-acting bronchodilators are more effective at reducing exacerbations
- * Combination therapies do not consistently show benefit over monotherapy
- * Use of O₂ for 15+ hours per day is associated with decreased mortality in pts with FEV₁ <30% predicted and evidence of hypoxemia at rest
- * Pulmonary rehabilitation programs for those with severe COPD can reduce hospitalizations and increase exercise capacity

Strong recommendations

- * Spirometry should be used to diagnose COPD in symptomatic patients
- * But not as a screening tool
- * If FEV1 is <60% predicted AND patient is symptomatic, treat with 1 of:
 - Long-acting β -agonist
 - Long-acting anticholinergic
 - Inhaled corticosteroid
 - Use O2 for patients with hypoxemia at rest

Weak recommendations

- * Consider combination of inhaled drugs in patients who have FEV1 <60% predicted and remain symptomatic on 1 drug
- * Consider pulmonary rehab in symptomatic patients with FEV1 <50% predicted

Chart review

- * 100 charts from FMR
- * Diagnosis of COPD seen in clinic between May 2007 and May 2008
- * 100 patients
 - 58 female
 - 42 male

Results

Recommendation #1:

Spirometry should be used to diagnose COPD in symptomatic pts

58 pt's had spirometry

4 were negative for obstruction

34 pt's followed with pulmonologist

- 100% were tested with spirometry

Of the remaining 66 pt's, only 24 (36%) had undergone spirometry

Results

Recommendation #2:

Treat with daily long-acting inhaler if FEV1 is <60% predicted

AND patient is symptomatic

34 pt's followed with pulmonologist

- 33 on daily treatment
- 74 pt's were on daily treatment
- 47 (63.5%) met the criteria
- 14 of 41 (34%) non-pulmonology pt's met criteria
- 6 pt's met criteria for treatment, but were not on a long-acting inhaler

Results

Weak recommendation:

Consider combination of drugs in pt's who have FEV1 <60% predicted and remain symptomatic on 1 drug

of inhaled meds

* 1- 21 patients

* 2- 33 “

* 3- 28 “

* 4- 13 “

* 5 or more- 5 “

References

Ferguson et al. “Management of Stable COPD.” Uptodate. 2008

Kleinschmidt. “COPD and Emphysema.” eMedicine. 2008

Qaseem et al. “Diagnosis and Management of COPD: A Clinical Practice Guideline from the American College of Physicians.”
Annals of Internal Med. 6 Nov 2007.