National and International Guidelines for COPD*

The Need for Evidence

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The introduction of guidelines for the management of asthma has led to standardization of management and better care of patients with the condition. Many national and international respiratory societies have developed guidelines for COPD. The World Health Organization and the National Heart, Lung, and Blood Institute are jointly developing guidelines that will present evidence-based recommendations for the management of COPD. The guidelines will discuss the definition, epidemiology, natural history, risk factors, pathology, and diagnosis of COPD. There will be guidance on the management of chronic disease and acute exacerbations, education, prevention, and socioeconomics. ***(CHEST 2000; 117:20S–22S)***

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Abbreviation: GOLD = Global Initiative for Chronic Obstructive Lung Diseases

Many aspects of our lives are controlled by guidelines. Although guidelines only started to be applied in medical practice some 10 years ago, they are now found in almost all aspects of medical practice. A clinical guideline may usefully be defined as "a systematically developed statement to assist practitioners' decisions about appropriate health care for specific clinical circumstances." The introduction of guidelines for the management of asthma has led to standardization of management and better care of patients with the condition.

The development of guidelines is a well-documented process, and the development is based, as far as possible, on evidence from well-controlled clinical studies. When there is insufficient evidence, we usually use a consensus from a number of experts in the field. The evidence-based guidelines are generally more acceptable than those formed from consensus opinion because modern medical practice requires that any treatment should have a clear scientific and clinical justification for its use. No guidelines can be useful unless there is a clear effort at implementation, but an evaluation of the impact of the guidelines on medical practice is rarely performed. The evaluation is not only important to determine the success of implementation, but is also useful for revision of the guidelines.

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The GOLD Initiative

The number of guidelines for the development of COPD is growing (Table 1). The National Heart, Lung, and Blood Institute and the World Health Organization are jointly developing guidelines for the management of COPD: the Global Initiative for Chronic Obstructive Lung Diseases (GOLD). The executive committee is chaired by myself and consists of 19 members who have responsibilities for developing different sections of the document.

The main objective of the GOLD project is to increase awareness about the importance of COPD. The guidelines must be applicable globally. From our experience with the Global Initiative for Asthma guidelines,[1] recommendations for COPD must be sufficiently flexible while giving clear directions for adaptation for different cultures and health-care systems. Finally, the development of guidelines must already consider how implementation will occur.

Recommendations of the GOLD Committee

The GOLD recommendations propose a new definition of COPD: "COPD is a disease characterized by a progressive airflow limitation caused by an abnormal inflammatory reaction to the chronic inhalation of particles." Two important points are worth noting. First, inflammation is the driving mechanism behind the abnormalities in the airways of patients with COPD.[2] Second, from a review of data from all over the world, it is clear that tobacco is not the only

Table 1—*COPD Guidelines*

American Thoracic Society
British Thoracic Society
Canadian Thoracic Society
Deutsche Atemwegsliga
European Respiratory Society
Norwegian Institute of Pharmacotherapy
Polish Phtysiopneumonological Society
Societe de Pneumologie de Langue Francaise
Spanish Society of Pneumology and Thoracic Surgery
Swiss Society of Pneumology
Thoracic Society of Australia and New Zealand

cause of COPD, and one can regard COPD as an overall abnormal reaction to many different particles.

With regard to the diagnosis, it is clear that earlier detection of COPD is needed. Spirometry may be a poor screening tool because it is not sensitive or cost-effective enough. We propose starting the diagnosis with the presence of certain symptoms, including cough, sputum, dyspnea, and wheezing, with confirmation by measurement of lung function.

Although the definition of COPD states that airflow limitation is progressive and largely irreversible, most of the recommendations, including those from drug registration authorities, use FEV_1 as the outcome measure.[3] New outcome measures are needed, such as the decrease in exacerbations and hospitalizations. Other potential measures include the relief of symptoms, improvement in quality of life, inhibition of long-term lung function decline, increase in performance status, and increase in life expectancy.

The GOLD committee has developed preliminary recommendations for the management of COPD (Table 2). The most important intervention in chronic COPD is smoking cessation. This is the only intervention proven at this time to affect long-term decline in FEV_1. There is clear evidence that clinician-delivered support has an effect on the smoking-cessation rate, as does skills training and nicotine replacement therapy. There is increasing evidence that bupropion treatment actually helps to increase the smoking-cessation rate. A recent study compared placebo vs nicotine patch vs bupropion alone vs the combination of the nicotine patch and bupropion.[4] The addition of bupropion to the treatment significantly increased the smoking-cessation rate.

The next important consideration for long-term management of COPD is the use of bronchodilators. Inhaled therapy is preferred because of safety benefits. There is some evidence that in the treatment of COPD, one can move from an as needed to regular treatment depending on the severity of the symptoms. There is no clear indication whether an anticholinergic or a β_2-agonist or a combination of the two is the first choice. There is increasing evidence for the effectiveness of inhaled long-acting β_2-agonist or anticholinergic agents as maintenance therapy.

The Lung Health Study shows that although regular treatment with the short-acting anticholinergic, ipratropium, does not inhibit the long-term decline in FEV_1, it does not have a deleterious effect[5] as has sometimes been claimed for the β_2-agonists in asthma. Generally, there is good evidence that nebulizer therapy is to be avoided for chronic treatment because of lack of cost-effectiveness. Several studies show that oral xanthines are effective bronchodilators in COPD. However, in countries in which inhaled therapies are available, they should be regarded as second-line option, because there is little evidence for an add-on effect and there is a high potential for toxicity and complications, and monitoring is needed. However, they may have a role in the treatment of advanced severe COPD.

Evidence about the role of inhaled corticosteroids in COPD is starting to accumulate. At the moment, corticosteroids should only be considered as a second-line treatment, and the exact indication remains to be determined. Both the EUROSCOP[6] and ISOLDE[7] studies have shown that inhaled corticosteroids improve postbronchodilator FEV_1. In addition, the studies showed that corticosteroids reduce exacerbation rate and that they inhibit the progressive loss of quality of life that is observed in COPD. However, there is no evidence for a long-term effect on the decline in FEV_1. Oral corticosteroids are

Table 2—*Preliminary GOLD Recommendations for the Management of COPD*

Intervention	Recommendation
Smoking cessation	Only intervention proven to affect the long-term decline in lung function.
Bronchodilators	Inhaled treatment is preferred, regularly or as needed depending on symptoms. β_2-agonist or anticholinergic alone or in combination. There is increasing evidence for the role of long-acting β_2-agonist or anticholinergic as maintenance therapy. Xanthines are a second-line option.
Inhaled corticosteroids	Evidence for a role as second-line therapy, but not for a long-term effect on lung function.
Oral corticosteroids	Treatment of acute exacerbations.
Mucolytics, cromones, antibiotics, antitussives	Not recommended for routine management.

useful for the treatment of acute exacerbations of COPD. Long-term treatment will only be considered after a trial has shown a beneficial effect that cannot be achieved with inhaled corticosteroids. There is clear evidence that the widespread use of a short course of oral corticosteroids to predict the response to inhaled corticosteroids is useless. If inhaled corticosteroids have no effect in advanced disease, the use of oral corticosteroids may be considered, but there is no evidence for an effect and a minimal dose must be used.

The committee has reviewed other interventions that are often used in the treatment of COPD. There is insufficient evidence that mucolytics, cromones, antibiotics, or antitussives are effective in COPD. There is good evidence to support the use of influenza vaccine, but a recent meta-analysis showed that *Streptococcus pneumonia* vaccination is probably not effective. Long-term oxygen therapy decreases mortality. There is good evidence for the usefulness of pulmonary rehabilitation in improving performance status. A large on-going study is evaluating lung volume reduction surgery and should provide evidence for its utility inasmuch as current evidence is limited. Similarly, there is only limited evidence for the efficacy of lung transplantation and for home ventilation. With regard to nutrition in COPD, there are really no good intervention studies with clinically relevant outcomes at this moment.

Conclusion

The GOLD guidelines present evidence-based recommendations for the treatment of COPD but there are still major challenges to be faced. First, we need to improve diagnosis of COPD and increase the awareness of patients, the general public, and medical practitioners about this disease. We recommend a symptom-driven approach, because although lung function confirms the diagnosis of COPD, it is not a cost-effective screening tool. We must change the therapeutic nihilism with this disease that is still regarded as self-inflicted. Although, for example, ischemic heart disease could be regarded as self-inflicted, substantial resources are devoted to research in this area in contrast with research for new treatments for COPD. The difference between COPD and asthma must be emphasized, and appropriate outcome measures should be defined. COPD badly needs new therapeutic modalities, and further therapeutic development must be stimulated.

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