The 2007 GOLD Guidelines: A Comprehensive Care Framework

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Comprehensive management of chronic obstructive pulmonary disease (COPD) includes proper assessment, monitoring of disease, reduction of risk factors, the management of stable COPD, and the prevention and management of exacerbations. The 2007 COPD guidelines from the Global Initiative for Chronic Obstructive Lung Disease address each of these aspects of COPD management in detail and provide evidence-based recommendations for patients and health-care professionals. Reduction of risk factors emphasizes the importance of smoking cessation and control of environmental indoor and outdoor pollutants. The management of COPD must be individualized. Aerosol administration of bronchodilators is the most effective method of reducing the work of breathing and alleviating dyspnea. Glucocorticosteroid therapy is recommended to reduce the frequency of exacerbations and improve health-related quality of life for patients with stage 3 and 4 COPD. Pulmonary rehabilitation proves effective in relieving symptoms, improving quality of life, and increasing patients' physical and emotional participation in activities of daily life. Oxygen therapy is essential for patients with substantial hypoxia. Patients with COPD and respiratory failure may benefit from noninvasive ventilation. Surgery may play a limited role in the management of selected patients with COPD. Since exacerbations influence lung function and clinical decline in patients with COPD and contribute to the cost of caring for this disease, efforts must be directed at prevention and management of exacerbations. In addition to controlled oxygen therapy, antimicrobials, brief courses of systemic corticosteroids and, on occasion, noninvasive or invasive mechanical ventilation may play a role. The role of respiratory therapists in the prevention, diagnosis, and management of stable COPD and exacerbations is absolutely essential if the goals of the 2007 Global Initiative for Chronic Obstructive Lung Disease guidelines are to be attained. *Key words: chronic obstructive pulmonary disease, COPD, management, Global Initiative for Chronic Obstructive Lung Disease, GOLD guidelines, exacerbations.* [Respir Care 2009;54(8):1040–1049.

Introduction

The 2007 updated Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines provide extraordinary benefits for patients, health-care providers, and bodies politic with regard to the epidemiology, prevention, diagnosis, and management of chronic obstructive pulmonary disease (COPD).[1] Patients benefit when their illness is better understood, more resources are expended in prevention and in meeting their health-care needs, and when there are explicit recommendations regarding the best practices for diagnosis and treatment. Health-care providers benefit from evidence-based guidelines, which direct efforts to properly diagnose and manage their patients and achieve better outcomes. Globally, bodies politic benefit when light is shined upon a health-care problem too long ignored, a problem that threatens to become the third leading cause of death worldwide by the year 2020. Accurate data regarding COPD can prepare governments to meet the challenges of tobacco prevention, resource allocation, and public and professional education necessary to appropriately address the projected COPD epidemic.

The purpose of this article is to review what the GOLD guidelines recommend for the comprehensive management of stable COPD and the prevention and treatment of exacerbations, and, ultimately, to illuminate the ways in which respiratory therapists (RTs) can and should make a difference.

The Management of Stable COPD

The GOLD guidelines divide the comprehensive management of COPD into 4 spheres: assessing and monitoring of disease; reducing risk factors; managing stable COPD; preventing and managing exacerbations.

RTs play an important role in each of these areas.

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Dr Gold presented a version of this paper at the symposium COPD: Empowering Respiratory Therapists to Make a Difference, at the 54th International Respiratory Congress of the American Association for Respiratory Care, held December 13-16, 2008, in Anaheim, California. The symposium was made possible by an unrestricted educational grant from Boehringer Ingelheim.

Dr Gold has disclosed relationships with Boehringer-Ingelheim and GlaxoSmithKline.

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Assessment and Monitoring of Disease

Elsewhere in this issue of RESPIRATORY CARE[2] the diagnosis of COPD is reviewed in detail. It is clear that an accurate diagnosis is essential before initiating appropriate management. There is evidence that, in the United States, COPD is under-diagnosed. In 1996 the National Health Interview Study estimated that there were 10.1 million adults or 6% of the United States population with COPD.[3] Subsequently the National Health and Nutrition Examination Survey (NHANES 3), which studied the United States population between 1988 and 1994, estimated that, using the GOLD definitions, 23.6 million United States adults had COPD, the majority of whom had mild disease according to GOLD criteria.[4]

While debate exists regarding whether discovery of early, minimally symptomatic, or asymptomatic COPD will substantively influence outcomes of those afflicted with mild disease, the large number of patients with or projected to develop COPD may serve to influence increased public health efforts to control smoking and air pollution, the major risk factors for the development of COPD. Furthermore, heightened awareness of the increasing prevalence and costs of COPD may influence the distribution of scarce health-care resources.

A clinical diagnosis of COPD should be considered in any patient who has dyspnea, chronic cough or sputum production, and/or a history of exposure to risk factors for the disease. The diagnosis should be confirmed by spirometry. Once a diagnosis of COPD has been made, severity should be assessed. Severity is determined by the degree of spirometric abnormality and by the presence of complications, such as respiratory failure and/or right heart failure.[5]

Excellent management of COPD patients requires that, during the course of illness, professionals monitor disease progression and the development of complications. In addition, professionals should reassess adherence to and effectiveness of pharmacotherapy and other medical treatment and continue or modify management plans. Further, professionals should monitor the history of and response to exacerbations and the development and management of comorbidities.

Reduction of Risk Factors

It is clear that smoking is the principal risk factor for the development of COPD. Currently, smoking cessation is the only intervention known to influence the inevitable loss of lung function that characterizes the course of COPD. Smoking cessation should be recommended for all smokers, especially those at risk of COPD and those already afflicted. The United States Public Health Service has recommended a 5-step intervention program to assist smokers

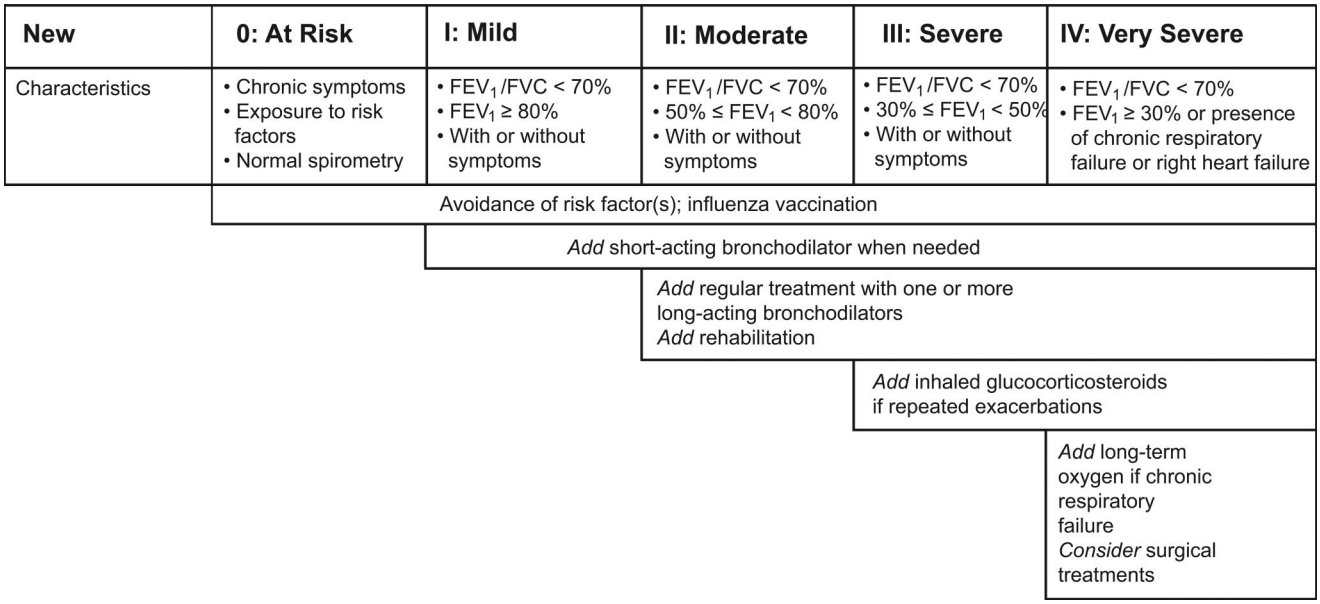

Fig. 1. Therapy at each stage of chronic obstructive pulmonary disease (COPD). Post-bronchodilator forced expiratory volume in the first second (FEV_1) is recommended for the diagnosis and assessment of severity of COPD. FVC = forced vital capacity. (From Reference 1)

with smoking cessation. Behavioral therapy and a variety of nicotine-replacement drugs, as well as additional pharmacologic treatments, may assist smokers in quitting.[6-8]

Environmental indoor and outdoor pollutants are recognized risk factors for the development of COPD, as are occupational pollutants.[9,10] Both public policy and personal protection are important in reducing risk. Primary prevention is essential to decrease the incidence of COPD in the population. Patients with established COPD are at particular risk of exacerbation or disease progression and must take careful precautions to reduce their exposure to inhaled pollutants from any source.[11]

Managing Stable COPD

The goals of management of COPD as set forth in the GOLD guidelines are thoughtful, practical, and designed to improve outcomes of care. They direct attention to the relief of symptoms, slowing the progression of disease, improving exercise tolerance, improving health status, preventing and treating complications, preventing and treating exacerbations, and reducing mortality.

The management of COPD should be individualized and will depend on the severity of illness and the unique clinical status of the patient. Although the severity of airflow obstruction provides a general guide to assessing the severity of illness and recommended therapy, the patient's symptoms, prior response to treatment, and the judgment and experience of the clinician are important determinants of treatment. The patient's adherence to therapy is influenced by a number of factors, including education and the cost and availability of medications. The GOLD guidelines for the staged management of COPD are summarized in Figure 1.

Bronchodilator Therapy. The cornerstone of symptom relief for patients with COPD is related to the relief of dyspnea. Improvement in the mechanics of breathing is a principal strategy to reduce the work of breathing and alleviate dyspnea. The administration of aerosol bronchodilators is the most effective method of decreasing airway resistance, decreasing the work of breathing, and alleviating breathlessness. Bronchodilators can be administered to the airways directly as liquid or powder aerosols, via inhaler or nebulizer, and can also be administered orally or parentally. Aerosol administration is the safest and most effective mode of administration. Effective drug delivery of inhaled medications depends, in large measure, on appropriate training in inhaler technique. Bronchodilators may be administered on an as-needed basis, on a regular schedule, or both.

The principal bronchodilator classes are β_2 agonists, anticholinergics, and methylxanthines. Regular treatment with long-acting bronchodilators is more effective and convenient than treatment with short-acting bronchodilators. Although methylxanthines such as theophylline may contribute to a reduction in COPD exacerbations, their therapeutic index is low, and inhaled bronchodilators are preferred. Bronchodilator classes may be combined to increase treatment response; however, the decision to add a second drug rather than increasing the dose of the initial drug

Table 1. Commonly Used Formulations of Medications Used in Chronic Obstructive Pulmonary Disease*

Medication	Dose (μg) (inhaler type)	Solution for Nebulizer (mg/mL)	Oral	Vial for Injection (mg)	Duration of Action (h)
β_2 agonists					
Short-acting					
Fenoterol	100–200 (MDI)	1	0.05% (syrup)		4–6
Salbutamol (albuterol)	100, 200 (MDI and DPI)	5	5 mg (pill) 0.24% (syrup)	0.1, 0.5	4–6
Terbutaline	400, 500 (DPI)		2.5, 5 (pill)	0.2, 0.25	4–6
Long-acting					
Formoterol	4.5–12 (MDI and DPI)				12+
Salmeterol	25–50 (MDI and DPI)				12+
Anticholinergics					
Short-acting					
Ipratropium	20, 40 (MDI)	0.25–0.5			6–8
Oxitropium	100 (MDI)	1.5			7–9
Long-acting					
Tiotropium	18 (DPI)				24+
Combination short-acting (β_2 agonist plus anticholinergic in one inhaler)					
Fenoterol/ipratropium	200/80 (MDI)	1.25/0.5			6–8
Salbutamol/ipratropium	75/15 (MDI)	0.75/4.5			6–8
Methylxanthines					
Aminophylline			200–600 mg (pill)	240	Variable, up to 24
Theophylline (sustained release)			100–600 mg (pill)		Variable, up to 24
Inhaled glucocorticosteroids					
Beclomethasone	50–400 (MDI and DPI)	0.2–0.4			
Budesonide	100, 200, 400 (DPI)	0.20, 0.25, 0.5			
Fluticasone	50–500 (MDI and DPI)				
Triamcinolone	100 (MDI)	40		40	
Combination long-acting (β_2 agonist plus glucocorticosteroid in one inhaler)					
Formoterol/budesonide	4.5/160, 9/320 (DPI)				
Salmeterol/fluticasone	50/100, 250, 500 (DPI) 25/50, 125, 250 (MDI)				
Systemic glucocorticosteroids					
Prednisone			5–60 mg (pill)		
Methylprednisolone			4, 8, 16 mg (pill)		

MDI = metered-dose inhaler
DPI = dry-powder inhaler
* Empty cells indicate not applicable or no information available.
From Reference 1.

should include careful considerations of adverse effects and costs.[12-19]

Glucocorticosteroid Therapy. The role of corticosteroids in the management of COPD has been controversial. Currently it is agreed that long-term use of systemic corticosteroids should be avoided if at all possible. COPD is an inflammatory disease, and inhaled corticosteroids reduce the frequency of exacerbations and improve health-related quality of life for patients with stage 3 or 4 COPD.

Decreasing exacerbations is a major goal of COPD management, and therefore inhaled corticosteroids are often prescribed, despite the slightly increased incidence of pneumonia noted among patients using inhaled steroids in controlled clinical trials. Combining an inhaled corticosteroid with a long-acting β_2 agonist is more effective than the individual components alone in reducing exacerbations and improving lung function.[20-25] The commonly used agents in the pharmacologic therapy of COPD are noted in Table 1.

Other Pharmacologic Therapy. A COPD management plan should include the administration of influenza vaccine annually for all patients, and pneumococcal polysaccharide vaccine for patients over the age of 65 years.[26-28] Antibiotics are recommended for the management of infectious exacerbations of COPD. Antibiotics that cover the spectrum of common pulmonary pathogens are usually prescribed when patients complain of fever, increased cough, sputum production, or sputum purulence.[29-30]

A number of studies have investigated the use of mucokinetic agents in the management of COPD. The benefits have been minimal, and regular use of these agents is not recommended.

A number of other pharmacologic therapies have been evaluated in the management of COPD, including antioxidants, immunomodulators, other anti-inflammatory medications, and anti-tussives. None have met with sufficient success and none are recommended in the GOLD guidelines.[31-34]

The use of opiates in the palliative care of COPD patients with advanced disease has a long history and, in the appropriate setting, after evaluating risks and benefits, should be considered.[35]

Pulmonary Rehabilitation. Pulmonary rehabilitation is a multidisciplinary program devoted to improving the well-being of patients with COPD and other respiratory disorders. Pulmonary rehabilitation has a proven role in increasing the quality of life among patients with COPD, decreasing dyspnea, increasing exercise tolerance, and lowering the frequency of exacerbations. A structured exercise program is an essential part of pulmonary rehabilitation and serves to improve the exercise tolerance of patients with COPD. The goals of pulmonary rehabilitation include relief of symptoms, improved quality of life, and increased physical and emotional participation in activities of daily life. Pulmonary rehabilitation programs address many of the comorbidities of COPD, including deconditioning, malnutrition, muscle wasting, isolation, and depression. Pulmonary rehabilitation increases exercise tolerance, improves quality of life, and alleviates symptoms. Although benefits wane over time, they can be sustained in part by continued exercise training in the home following completion of a rehabilitation program.[36-39]

Oxygen Therapy. Oxygen therapy plays a vital role in the management of patients with COPD. The long-term administration of oxygen ($>$ 15 h/d) increases survival; in fact, it is the only treatment modality that does so. Oxygen therapy can improve hemodynamics, exercise capacity, and cognitive ability. Medicare has established criteria for the administration of oxygen, and most insurance carriers use these criteria. Medicare approves reimbursement for oxygen for patients whose P_{aO_2} is $\leq$ 55 mm Hg or whose arterial oxygen saturation (S_{aO_2}) is $<$ 88%, with or without hypercapnia, or for patients whose P_{aO_2} is between 55 mm Hg and 60 mm Hg when there is evidence of pulmonary hypertension, heart failure, or polycythemia (hematocrit $>$ 55%). Patients with qualifying levels of hypoxia at rest should be encouraged to use their oxygen continually throughout the day and night. Prescriptions for oxygen should specify the mode of delivery; duration of use; and liter flow at rest, during exertion, and during sleep. Some COPD patients, particularly those with concomitant sleep apnea, may require oxygen only during sleep, and occasionally patients require oxygen only during periods of exertion.[40-42]

Other Treatment Modalities

Noninvasive Ventilation

Selected patients with unremitting dyspnea and chronic respiratory failure may benefit from noninvasive ventilation (NIV), when used in the home setting. Such treatment must be individualized and requires careful evaluation to ensure that other, more conventional modes of treatment have not been overlooked.[43]

Surgery

Surgery plays a limited role in the management of COPD. A large-scale clinical trial assessed the role of lung-volume-reduction surgery in the management of COPD and demonstrated that only those patients with predominantly upper-lobe disease and reduced exercise capacity had a survival benefit. Some patients with very poor pulmonary function actually experienced increased mortality. Since the procedure is expensive and requires highly skilled surgical teams not readily accessible in many communities, lung-volume-reduction surgery is recommended only for a carefully selected group of patients with COPD. The clinical trial confirmed the benefits of pulmonary rehabilitation, which was a prerequisite for all patients, a number of whom experienced significant symptomatic and functional improvement and no longer required surgery.[44,45]

Lung transplantation in patients with very severe COPD has been demonstrated to improve quality of life and functional capacity. Given the age and comorbidities of most

COPD patients, lung transplantation is usually not a practical consideration. Young patients with alpha-1 antitrypsin deficiency may be in a unique position to benefit from transplantation if their emphysema is severe.[46,47]

Prevention and Management of Exacerbations

Exacerbations of COPD contribute substantially to the costs of caring for this disease. Further, they are instrumental in advancing the inexorable decline of lung function and clinical status in patients afflicted with COPD. An exacerbation is defined as an event in the natural course of the disease, characterized by a change in the patient's baseline dyspnea, cough, and/or sputum production, that is beyond normal day-to-day variations, is acute in onset, and may warrant a change in regular medication in a patient with underlying COPD.[48,49]

Although exacerbations contribute substantially to the morbidity and cost of COPD, the principal determinants of mortality associated with exacerbations are the development of acidosis, the need for mechanical ventilation, and the presence of important comorbidities.[50]

Infections and inhalation of irritants are common and important causes of exacerbation; however, in as many as one third of exacerbations a specific cause cannot be identified.[51,52] Sadly, non-adherence to a prescribed management program, for a variety of reasons, most of which are socioeconomic, accounts for many so-called exacerbations. A history of changing symptoms is the principal basis upon which a diagnosis of exacerbation is made. Customary complaints are increased breathlessness, chest congestion or tightness, increased cough, and increased sputum production. Sputum often changes in amount and viscosity, and becomes darker in color. Non-specific complaints such as decreased exercise tolerance, generalized malaise, fever, and tachycardia and tachypnea often accompany exacerbations. Occasionally patients with substantial alterations in blood gases experience confusion, stupor, or otherwise altered mental status.

The severity of an exacerbation is determined by the degree of symptomatic change from the patient's baseline. Patients are usually too ill to provide accurate and consistent spirometric values, and spirometry is infrequently used to assess severity; however, measurements of pulse oximetry and arterial blood gasses are important objective measures of severity. A P_{aO_2} of < 60 mm Hg and/or $S_{aO_2} < 90\%$, with or without a $P_{aCO_2} > 50$ mm Hg when breathing room air, indicate the presence of respiratory failure. A pH < 7.36 with hypercapnia (P_{aCO_2} 45–60 mm Hg) in a patient with respiratory failure may signal the need for mechanical ventilation.[53,54]

The standard evaluation of a patient with COPD exacerbation includes posteroanterior and lateral chest radiographs, which may identify pneumonia, pulmonary edema, or pneumothorax as the explanation of the patient's acute problem, as opposed to COPD exacerbation alone. Electrocardiogram is obtained to assess the presence of cardiac arrhythmias, ventricular strain, and ischemia. Since polycythemia, anemia, and electrolyte disturbances often accompany COPD exacerbations, a complete blood count and comprehensive metabolic panels are appropriate.

It is customary and good clinical practice to treat patients with increased sputum volume and/or purulence with empirical antibiotics directed at the common respiratory pathogens, *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Moraxella catarrhalis*. If patients do not respond promptly, a sputum culture and sensitivity should be obtained.[55]

Pulmonary embolism should always be considered in patients presenting with increased dyspnea and hypoxia, and can certainly occur in the setting of COPD exacerbation. It may be difficult to exclude pulmonary embolism, and, especially in patients with refractory hypoxia after initial treatment, it is reasonable to treat empirically for pulmonary embolism or to obtain computerized tomographic angiography or other diagnostic modalities. In addition to pneumonia, heart failure, and pulmonary embolism, other conditions that mimic COPD exacerbations include pleural effusion, pneumothorax, and arrhythmias.

Management of exacerbations may occur in the outpatient setting or in a hospital basic or intensive care unit. Determining the appropriate setting requires clinical judgment, as there are no clearly defined, evidence-based guidelines, and the availability of and accessibility to hospital care vary from area to area. In those health-service areas that provide for increased intensity of home care following evaluation in a physician's office, emergency department, or urgent care facility, hospitalization of sicker patients with exacerbation may be averted with no deleterious impact on outcomes.[56-59]

Out-Patient Management of Exacerbations

In general, successful management plans include increasing the dose and/or frequency of bronchodilator therapy and potentially adding a new class of bronchodilator. Initiating a brief course of systemic glucocorticosteroids during an exacerbation shortens the duration of the exacerbation and results in improvement of hypoxia and lung function. Doses of prednisone in the range of 30–40 mg per day for 7–10 days are recommended.[60]

Hospital Management of Exacerbations

In the hospital the initial management of COPD exacerbation is directed toward improving hypoxia with controlled oxygen therapy administered via nasal cannula or air-entrainment mask, to achieve an S_{aO_2} of 90%. Blood

Table 2. Management of Severe But Not Life-Threatening Exacerbations of COPD in the Emergency Department or the Hospital*

Assess severity of symptoms, blood gases, chest radiograph
Administer controlled oxygen therapy and repeat arterial blood gas measurement after 30–60 min
Bronchodilators
Increase dose and/or frequency
Combine β_2 agonists and anticholinergics
Use spacer or air-driven nebulizer
Consider adding intravenous methylxanthines, if needed
Add oral or intravenous glucocorticosteroids
Consider antibiotics (oral or occasionally intravenous) when signs of bacterial infection
Consider noninvasive mechanical ventilation
At all times:
Monitor fluid balance and nutrition
Consider subcutaneous heparin
Identify and treat associated conditions (eg, heart failure, arrhythmias)
Closely monitor condition of the patient

* Local resources need to be considered.
COPD = chronic obstructive pulmonary disease
From Reference 1.

gases should be monitored within 30–60 min to assure that CO_2 retention is not developing.[53] Short-acting β agonists are administered frequently to achieve and maintain bronchodilation. Anticholinergics may be added if initial responses are inadequate. Methylxanthines remain controversial but may be introduced if patients do not respond sufficiently to treatment with β agonists and anticholinergics. Intravenous, as opposed to oral, glucocorticosteroids are usually initiated in the hospital setting. As in the out-patient setting, therapy beyond 7–10 days should be avoided.[53,61]

Antimicrobial therapy is initiated for those patients with the combination of increased dyspnea, increased sputum volume, and increased sputum purulence. If sputum purulence is present, only one additional symptom is required. Antimicrobials are also administered when mechanical ventilation is required. The spectrum of common bacterial organisms is as noted above, although viral infections, mycoplasma, and chlamydia may play a role.[53,62,63] The management of patients with severe but non-life-threatening exacerbations of COPD is outlined in Table 2.

Respiratory stimulants are not recommended in the management of exacerbations of COPD.[61] When patients develop acidosis and/or progressive hypercapnia, mechanical ventilation is recommended to relieve symptoms and improve morbidity and mortality. Ventilatory support may be achieved via negative or positive NIV or via invasive positive-pressure ventilation via an endotracheal tube or tracheostomy.

Several randomized clinical trials document the efficacy of NIV. NIV improves respiratory acidosis, diminishes dyspnea, decreases respiratory rate, decreases hospital length of stay, and decreases mortality.[43,64-67] Indications and contraindications for NIV are provided in Table 3.

In those cases when NIV is unavailable or unsuccessful, invasive ventilation may be indicated. The use of invasive mechanical ventilation imposes risks of ventilator-associated pneumonia and barotrauma.[68,69] The decision to initiate invasive mechanical ventilation should be informed by the potential reversibility of the respiratory failure and the wishes of the patient.

Discussions surrounding the management of respiratory failure and other critical illnesses and the designation of advance directives are important parts of the management of COPD, and are best held with patients periodically during the course of their routine care. Data suggest that weaning from invasive mechanical ventilation, often a challenge in patients with COPD exacerbation, may be facilitated by NIV.[70]

The successful hospital management of patients with COPD exacerbation requires meticulous attention to the care of the entire patient, not just the lungs. Careful management of fluid and electrolytes, nutrition, hemodynamics, thromboembolism and ulcer prophylaxis, and the psychological and spiritual support of the patient and his or her loved ones are critical in ensuring optimal outcomes. Careful supervision of the patient, with follow-up assessment in 4–6 weeks to ensure adherence to the management plan for stable COPD, continued efforts to achieve smoking cessation for those patients still addicted to nic-

Table 3. Indications and Relative Contraindications for Noninvasive Ventilation

Selection Criteria
Moderate to severe dyspnea with use of accessory muscles and paradoxical abdominal motion
Moderate to severe acidosis (pH $\leq$ 7.35) and/or hypercapnia (P_{aCO_2} $>$ 45 mm Hg)
Respiratory frequency $>$ 25 breaths/min
Exclusion criteria (any may be present)
Respiratory arrest
Cardiovascular instability (hypotension, arrhythmias, myocardial infarction)
Change in mental status; uncooperative patient
High aspiration risk
Viscous or copious secretions
Recent facial or gastroesophageal surgery
Craniofacial trauma
Fixed nasopharyngeal abnormalities
Burns
Extreme obesity

From Reference 1.

otine, encouragement of routine exercise, and social interactions are all essential if recidivism is to be avoided.

The Vital Role of Respiratory Therapists

RTs, by virtue of their education, training, skills, interests, and commitment to their patients, are well positioned to serve as a major resource for public and professional education regarding the epidemiology, signs and symptoms, and criteria for diagnosis and monitoring of COPD. RTs should play an active role in public and professional education regarding COPD risk factors and should commit resources to campaigns targeted at reducing exposure to cigarette smoke and other pollutants. Among the corps of RTs, many should play a direct role in smoking-cessation programs. The American Association for Respiratory Care, working in concert with educational institutions and other professional organizations, should allocate resources to ensure that well trained personnel are available to speak to the public, patients, and professionals regarding the importance of COPD, how it can be prevented, and how it should be managed. The 2007 GOLD guidelines can provide a template. The participation of RTs in smoking-cessation programs and forums for patient and public education facilitates the very important task of slowing disease progression. Thus far, smoking cessation has been the only intervention proven to alter the natural history of COPD.

Since timely and accurate diagnosis is a cornerstone of COPD management, RTs provide an essential need when they perform spirometric testing according to methods that meet the American Thoracic Society guidelines and those of the GOLD guidelines.

Summary

This paper has outlined the most recent GOLD guidelines for the management of COPD. When RTs administer bronchodilators, train patients to properly use metered-dose inhalers, administer oxygen to patients in need, participate in pulmonary rehabilitation, teach breathing techniques, and provide NIV or invasive mechanical ventilation, they make important contributions to the relief of symptoms and the management of COPD in out-patient and hospital settings. Indeed, the current GOLD guidelines could not be easily met without the participation of well-trained, dedicated, and compassionate RTs.

Knowledge alone will not ensure optimal care for patients suffering from COPD. Recognition of the importance of the problem, professional commitment, and the dedication of resources are essential. To this end, the American Association for Respiratory Care strategic initiative 2015 and Beyond[71] should empower RTs across the globe to make substantial contributions to the prevention and care of COPD.

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