CHAPTER 24

Working with Elders Who Have Pulmonary Conditions

ANGELA M. PERALTA AND SHERRELL POWELL

KEY TERMS

chronic obstructive pulmonary disease, chronic pulmonary emphysema, chronic bronchitis, bronchiectasis, energy conservation, work simplification

CHAPTER OBJECTIVES

1. Define chronic obstructive pulmonary disease.
2. Identify common symptoms of chronic obstructive pulmonary disease.
3. Identify the psychosocial effect of chronic obstructive pulmonary disease on elders.
4. List conditions that effect the sexual functioning of elders with chronic obstructive pulmonary disease.
5. Describe assessment and treatment intervention for elders with chronic obstructive pulmonary disease.

Denise is a certified occupational therapy assistant (COTA) who works in a large rehabilitation hospital in the South Bronx section of New York City. Her clients are from lower socioeconomic backgrounds. Many of them are factory workers and manual laborers. Denise has noticed a marked increase in the number of referrals to occupational therapy (OT) of elders who have **chronic obstructive pulmonary disease (COPD)** as a secondary diagnosis. These elders are finding it difficult to carry out their activities of daily living (ADL) because of the debilitating effects of COPD. On reviewing their social histories, Denise found that many of these elders worked with a variety of chemicals and that many of them were heavy smokers. Some of the major problems these elders must deal with include difficulty engaging in self-care activities, a decreased level of endurance, chronic fatigue, and an inability to engage in leisure activities. Many elders with COPD report a fear of not being able to breathe because of frequent episodes of shortness of breath.

COPD also is seen in elder residents of nursing homes, usually as a secondary diagnosis. Regardless of the setting, COTAs working with elders who have COPD must be aware of the causes, symptoms, and OT interventions for this disease.

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

COPD is a general disease that can include **chronic pulmonary emphysema, chronic bronchitis,** and chronic severe asthma. Chronic bronchitis and emphysema affect

the upper and lower respiratory tracts and are characterized by cough, expectoration, wheezing, and dyspnea. These symptoms occur first with exercise and later when the elder is at rest. Asthma, which is characterized by an increased responsiveness of the bronchi to various stimuli, results in bronchoconstriction, inflammation of the mucosa, and an increased amount of secretions (Pauwels, 2000). COPD is associated with airflow obstruction, which may be accompanied by airway hyperreactivity and may be partially reversible (Baum, 1997). Clinical symptoms of COPD vary depending on the severity and duration of the diseases.

Chronic Bronchitis

Chronic bronchitis is defined as the presence of a chronic productive cough and sputum production for at least 3 months out of a year for a 2-year period. One symptom of chronic bronchitis is hypersecretion of mucus in the respiratory tract in individuals for whom other causes, such as infection, have been ruled out (Keith & Novak, 2001). The sputum of a person with chronic bronchitis is usually thick yellow to gray. A deep productive cough is the main symptom of this disease. Other symptoms include shortness of breath, wheezing, a slightly elevated temperature, and pain in the upper chest that is aggravated by cough.

A person may have a mild form of chronic bronchitis for many years. Individuals with mild chronic bronchitis may have only a slight cough in the morning after being inactive at night. This cough can become aggravated after the person has an acute upper respiratory tract infection. As the condition progresses, obstructive and asthmatic symptoms appear, together with dyspnea. Chest expansion becomes diminished, and scattered rales and wheezing are frequently heard (Petty, 2001).

Bronchiectasis, a permanent dilation of the bronchi, is the most common complication of bronchitis. Bronchiectasis often is associated with bronchiolectasis, a dilation of the bronchiole. Such dilation occurs as a result of persistent inflammation inside the airways. The dilated bronchi and bronchiole are filled with mucopurulent material that stagnates and cannot be cleared by coughing. Infection then spreads into the adjacent alveoli, and recurrent episodes of pneumonia are common. Clubbing of the fingers often develops in elders with this condition (Damjanov, 2000).

Chronic Pulmonary Emphysema

Emphysema is a chronic condition characterized by permanent enlargement of the air spaces distal to the terminal bronchioles. Emphysema is accompanied by destruction of the alveolar walls and causes the lungs to lose elasticity, resulting in decreased airflow (Pauwels, Buist, Calverley, Jenkins, & Hurd, 2001). This decreased airflow results in dyspnea. Elders with emphysema have no bronchial obstruction or irritation that would cause them to expectorate (Petty, 2001). The inability to exhale the carbon monoxide that is trapped in the lungs causes the chest to overexpand, a condition referred to as *barrel chest.* The elder must hunch forward while holding onto a stable object to engage the auxiliary respiratory muscles during breathing. These elders manage to oxygenate their blood by hyperventilating, which prevents cyanosis and anoxia (Pauwels, Buist, Calverley, Jenkins, & Hurd, 2001).

Asthma

Asthma is defined as a reversible airway disease characterized by an increased responsiveness of the trachea and the bronchi to various stimuli. Asthma is displayed by a widespread narrowing of the airways that changes in severity either spontaneously or as a result of therapy. During an acute attack, pronounced wheezing occurs because of difficulty in inhaling and exhaling air. Dyspnea, tachypnea, and chest tightness may also occur. The elder experiencing an asthmatic attack may also perspire profusely (Baum, 1997).

PSYCHOSOCIAL EFFECT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Rehabilitation of elders with COPD should include both medical management and assistance in coping with the debilitating effects of this chronic condition. As with any chronic condition, elders adapt in different ways. Some elders accept and adapt to the changes in energy level and other accompanying symptoms of COPD. For other elders, coping with symptoms of COPD may be a frustrating and depressing experience. Furthermore, elders with COPD often have additional stressors in their lives, such as the loss of a spouse and close friends, changes in living situation, a decrease in financial status, loss of productivity, lack of family support, inability to perform ADL functions, and loss of general body function (Bonder & Wagner, 2001; Pauwels, Buist, Calverley, Jenkins, & Hurd, 2001).

Weakness and fatigue associated with COPD may require changes in living situations including a move to a higher level of assistive living. As with any move, emotional adaptations are required. Often elders with COPD seek to live in a different environment where they believe the air is cleaner or they can breathe better; however, they may find that such a move is not the solution to their problem because it cuts them off from a social support network. A sense of isolation may cause an increase in anxiety and may lead to depression.

Additional problems related to decreases in finances may arise for elders. The primary source of income for many elders is Social Security payments. Funds obtained from this source may not be sufficient to pay for medications or home health services if needed. The situation can be particularly frustrating for elders with COPD who are insured by Medicare, because they will not be reimbursed for rehabilitation care unless they have a change in functional status.

In addition, elders with COPD may have a sense of loss of productivity if they are unable to engage in activities that provided enjoyment in previous years. Social isolation because of concerns about a decreased energy level, shortness of breath, oxygen usage, coughing, and sputum production may contribute to depression. Elders may become afraid that engaging in any type of physical activity may cause an increase in shortness of breath. This can lead to a cycle of fear and ultimately a need for more oxygen. Some elders with COPD also experience frustration because of a decline in their abilities to perform ADL functions as a result of a decreased level of endurance. Finally, some elders with COPD may have other chronic problems such as decreased vision, or perhaps a general decline in other body systems. All these stressors could contribute to anxiety and depression.

Over time some elders with COPD begin to realize that a change in emotional status, whether positive or negative, has a direct effect on the respiratory system. Fear of expressing any type of emotion becomes a reality. This situation can further perpetuate a state of isolation. These elders may rationalize, "If I cannot express my emotions, then I will stay by myself." This position may be misinterpreted by others as hostility or aloofness, thereby creating more isolation.

SEXUAL FUNCTIONING

Elders with COPD may experience some loss of sexual functioning. Factors that may affect sexual functioning are shortness of breath, a decreased level of endurance, and a lack of desire. Changes in self-concept also can affect sexuality. Some men may have difficulty maintaining or obtaining an erection, perhaps because of fears of sexual failure. However, impotence can be the result of many causes, including side effects of medication. Therefore, elders who are impotent should contact their physicians. Fear of sexual failure because of shortness of breath is one of the most common causes of sexual inactivity among elders with COPD. Engaging in sexual activity involves an increase in the breathing rate. For many elders a fear of suffocation or not being able to increase the depth of breathing inhibits their abilities to engage freely in sexual activity (Hodgkin, Bartolome, & Gerilynn 2000). COTAs can address some of the sexual functioning concerns of these elders by being open to discussing these concerns during treatment. Providing energy conservation suggestions such as encouraging elders to have sexual relations when they are most rested may be beneficial. (A more in-depth discussion of ways to address sexual concerns with elders is provided in Chapter 12.)

Occupational Therapy Assessment and Treatment Planning

COTAs contribute to the evaluation process of elders with COPD and collaborate with occupational therapists (OTRs) in treatment planning. ADL functions and productive and leisure activities often are the primary areas of concern. Elders may experience the most disabling symptoms of COPD, such as dyspnea and fatigue, when engaging in these activities. These symptoms, together with anxiety and depression related to the chronic illness, perpetuate the vicious cycle of inactivity. The deconditioning and muscle weakness that occur from inactivity make it increasingly difficult for elders to perform necessary ADL functions to be independent in the home and community (Bonder & Wagner, 2001)

The OTR and COTA assess many performance components to determine the effects of COPD on function. Performance components such as sensory awareness are assessed to determine tactile impairment. Perceptual skills are assessed to determine an elder's response during episodes of dyspnea, particularly if they become dizzy. Neuromuscular components are assessed to determine physical tolerance and endurance, shortness of breath on exertion, muscle strength, range of motion, and posture. Cognition is assessed to determine the elder's knowledge of the disease and accompanying problems. In addition, the elder's judgment, problem-solving skills, ability to generalize learning, and awareness of safety hazards are evaluated. Psychosocial ability is assessed to determine the elder's psychological, social, and self-management skills. Elders with COPD may experience feelings of hopelessness, depression, withdrawal from social activities, and dependency on a spouse or caregiver (American Psychiatric Association, 2000). Impairment in any of these areas directly affects the elder's ability to engage in self-care, work, and leisure activities.

COTAs must be aware of certain precautions during treatment. Knowing the various symptoms associated with COPD, such as shortness of breath and asthma, as well as the environmental irritants that can affect the elder's ability to breathe, is important. These irritants can include cigarette smoking, dust from woodworking activities, and fumes that arise from activities such as copper tooling. Other irritants include talcum powder, certain perfumes, and poor air quality in the clinic.

OT intervention is geared toward increasing independence in functional activities by improving strength and endurance through resistive activities. Reconditioning programs such as the metabolic equivalents (METs) that are used with individuals who have cardiac conditions often are also used with patients with COPD (Bonder & Wagner, 2001). (A more in-depth discussion of the use of METs to guide activity prescriptions is provided in Chapter 23.) Low-impact exercise places minimum stress on joints and is easier to perform than high-impact activities. Exercise programs should include functional activities that target the upper body, and they should be designed to increase the strength of respiratory muscles.

Activities should be stopped if nausea, dizziness, fatigue, increased shortness of breath, or chest pain develops.

Energy conservation and **work simplification** techniques are used with elders who are predisposed to fatigue (Fig. 24-1). COTAs should actually try these techniques with elders rather than simply providing them with education sheets. Energy conservation and work simplification techniques should include scheduling rest periods in between activities, sitting whenever possible, reducing or eliminating steps, pushing rather than pulling, and analyzing an activity before starting it. Having all supplies for ADL functions within easy reach to avoid unnecessary trips also is beneficial. Time management is a technique that teaches elders to plan daily activities so that rest periods are "built in" to avoid some of the complications of COPD. Good time management skills may make the difference between a full, active life and a sedentary one.

Elders must develop the problem-solving skills needed to identify that they are no longer able to perform a task in the customary way and when to change the process. Adaptive equipment such as a reacher, a cart to carry heavy items, and a motor scooter for outdoor activities can assist with function. In addition, COTAs can encourage elders to become involved in social activities. Teaching stress reduction techniques can help encourage elders to have a sense of independence.

The COTA/OTR team may also reinforce breathing techniques taught in the respiratory therapy program, such as pursed-lip breathing and diaphragmatic breathing (Fig. 24-2). According to Spencer (1993), "Pursed-lip breathing creates a resistance to the flow of air out of the lungs and slows down the breathing rate. This technique is used with stressful activities to avoid shortness of breath. Diaphragmatic breathing decreases the cost of breathing and enables the elder to engage in purposeful activities" (p. 653). COTAs working with elders who have COPD must become efficient at administering oxygen and must be prepared to assist with controlled coughing, breathing, and other procedures.

CONCLUSION

COPD is a common disease in the United States, especially among elders. COTA/OTR teams are becoming increasingly proactive in the treatment of this debilitating disease. They provide intervention to elders with COPD in a variety of settings. OT intervention is geared toward restoration of self-care skills, instruction in pacing of daily activities, and the restoration of physical capabilities. COTAs are instrumental in teaching compensatory techniques to be used in the performance of ADL functions and in the selection and use of assistive devices and adaptive equipment. COTAs may also become involved in teaching energy conservation and work simplification techniques. Addressing stress management may be a part of therapy; this may also help to reinforce respiratory therapy breathing techniques. Ultimately, the goal of OT with elders who have COPD is to maximize their level of independence as they adjust to living with a chronic condition.

FIGURE 24-1 A certified occupational therapy assistant observes an elder practice energy conservation and work simplification techniques as he does laundry.

FIGURE 24-2 Certified occupational therapy assistants often must reinforce techniques such as pursed-lip breathing during activity.

CASE STUDY

Lily is a 70-year-old woman who was recently discharged from the hospital after being treated for pneumonia. She has a 20-year history of COPD. Lily's most current hospitalization compromised her health greatly. Lily has been a widow for 25 years. She has one son who lives in the area but is not very involved in her life. "He is afraid that I may need him to fix something. I wish that I would see him more often as I do enjoy his company," Lily stated.

Lily enjoys needlework and her concern for the environment is evident in the extensive recycling she does in her home. She previously went out into the community three or four times a month for doctor appointments, shopping, and socializing with friends. She does not drive and relies on others for transportation.

Lily was independent in ADL and IADL before her hospitalization. Her primary care physician ordered home health at discharge and the OTR completed the initial evaluation. Maritza is a COTA who has been working in home health for 5 years and will manage Lily twice a week for 3 weeks. Initially, Lily is concerned about how she will be able to complete her daily routine now that she is on oxygen 24 hours a day and her endurance is severely limited.

Maritza and Lily discuss the occupational tasks that Lily wants to complete independently. They identify that it would be best to start with basic self-care activities incorporating energy conservation. Maritza reviews handouts on energy conservation for Lily to refer to later. She then has her practice the techniques while engaged in activities. For example, she places a chair in the bathroom for her to sit in while undressing, dressing, and for resting. Martiza instructs Lily in using pursed-lip breathing techniques during self-care tasks. Maritza saw photos of Lily posted in her home and observed that she took pride in her appearance. Low endurance and a fixed income have prevented Lily from visiting the beauty salon, so Maritza suggests that she purchase a wig. Lily embraces the idea.

Maritza provides a commode that Lily can use over the toilet and next to her bed at night. Other bathroom equipment includes a handheld shower and a tub transfer bench. The shower doors are removed and replaced with a shower curtain to help Lily transfer to the tub safely.

Lily becomes independent in ADL using energy conservation techniques. She figures out ways to get around her home safely while managing the oxygen hose. She reports difficulty with food preparation and the desire to address that area in treatment. Subsequently, Maritza completes a kitchen evaluation and finds that cooking is difficult and unsafe. Lily tires easily, forgets about food in the oven, and leaves food out to spoil. She has lost interest in eating nutritious meals. Maritza suggests that Lily receive Meals on Wheels.

Lily expresses an interest in continuing her recycling activities. The recycling bins are located on the porch floor and she has difficulty reaching them. Maritza moves a small picnic table close to the door, places the recycling bins on top of it, and labels the bins for easy identification. The picnic table allows Lily to work at a proper work height. A neighbor boy who visits frequently volunteers to take them to the curb on a weekly basis. At discharge Lily is able to function in her environment safely and plans to pursue public transportation so she can move about the community because she is interested in taking a needlepoint class at a local craft store.

CASE STUDY QUESTIONS

1. Why did Maritza instruct Lily in pursed-lip breathing techniques while transferring?
2. What are the physical and psychological benefits of Lily wearing a wig?
3. Why is it important to practice energy conservation techniques during activities?
4. Describe how Lily could use energy conservation during two other activities.

CHAPTER REVIEW QUESTIONS

1. Describe some physiologic factors that may affect elders with COPD.
2. Describe precautions to be aware of when working with elders with COPD.
3. Describe community resources that would be useful for elders with pulmonary conditions.

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