CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Chronic obstructive pulmonary disease is a combination of two separate but closely related diseases - emphysema and chronic bronchitis. The condition can be managed with supplemental oxygen and medications but cannot be cured. Lifestyle changes such as exercise and smoking cessation can help but the disease is progressive and worsens over time. The Certified Nursing Assistant will need to concentrate on specific aspects of patient care when providing individualized assistance for a patient diagnosed with chronic obstructive pulmonary disease, as well as knowing when symptoms are severe enough to report to the appropriate supervising nurse or physician.

Learning Goals:

1. Define chronic obstructive pulmonary disease (COPD).
2. Identify the common causes of COPD.
3. Identify the common signs/symptoms, treatment and management of COPD.

Introduction

Chronic obstructive pulmonary disease is persistent and progressive. There is not a single cause of chronic obstructive pulmonary disease (COPD) but most cases are caused by chronic cigarette smoking. COPD cannot be cured but it can be managed and treated by the patient making lifestyle changes, with supplemental oxygen and with the use of medications. The disease will continue to progress until the patient succumbs to the disease and dies from respiratory failure or other complication from COPD. As a consequence, caring for a patient with COPD can be very challenging. Caring for patients with COPD requires that the certified nursing assistant (CNA) be familiar with the disease. The CNA must also learn each patient's abilities and limitations. It is also important to provide the patient with the emotional support and care unique to this medical condition.

Incidence Of COPD

Chronic obstructive pulmonary disease is a chronic disease that affects the lungs. The word *pulmonary* refers to the lungs. Chronic obstructive pulmonary disease is a common condition. More than 15.7 million Americans have COPD, and it is currently the third leading cause of death in the United States. Chronic obstructive pulmonary disease is a progressive disease; it gets worse with each successive year. It can be managed with lifestyle adjustments and medications but there is no cure.

There is evidence that some people inherit the tendency to develop COPD. It can also be caused by exposure to chemicals, pollutants, and some rare medical problems; however, only a small percentage COPD

cases are caused by environmental or medical factors. The great majority of cases of COPD are caused by cigarette smoking.

The Centers for Disease Control and Prevention (CDC) reported that "although age-adjusted death rates for COPD have declined among U.S., men between 1999 (57.0 per 100,000) and 2014 (44.3 per 100,000) in the United States, there has been no significant change among death rates in women (35.3 per 100,000 in 1999 and 35.6 per 100,000 in 2014)". More than half of adults with low lung function are not aware they have COPD, which means the data shown above may actually be higher. The CDC also provides the following facts in 2013 about group populations more likely to report COPD:

- People aged 65–74 years and ≥ 75 years.
- American Indian/Alaska Natives and multiracial non-Hispanics.
- Women.
- Individuals who were unemployed, retired, or unable to work.
- Individuals with less than a high school education.
- Individuals who were divorced, widowed, or separated.
- Current or former smokers.
- People with a history of asthma.

Pulmonary Anatomy And Physiology

The pulmonary system, also called the respiratory system, starts with the oral cavity (mouth) and the nose. Attached to the back of the mouth is a stiff but somewhat flexible tube called the trachea, which is more commonly called the windpipe; it is easily visible. The trachea ends at about the level of the shoulders, and it is attached to two other stiff but flexible tubes that extend down into the lungs in the

chest cavity. One of these extends into the left lung, the other goes into the right lung, and these are called the main stem bronchi.

At the terminal ends of the main stem bronchi are many small, hollow passages called the bronchial tubes. The bronchial tubes extend from the ends of the main stem bronchi into the outer parts of the lungs. Eventually the bronchial tubes end in small clusters of air sacs called alveoli that are located at the bottom of the lungs. The alveoli look very much like clusters of grapes, and there are thousands of them. They are pliable, elastic, and they have extremely thin walls - a feature that is very important and will be discussed later in this section.

When a person inhales, the chest expands, air with oxygen moves through the nose and mouth, down the trachea to the main stem bronchi, through the bronchial tubes and eventually it reaches the alveoli. Immediately next to the alveoli are large numbers of extremely small blood vessels called capillaries; the alveoli and the capillaries touch one another. The walls of the alveoli have tiny pores, and the inhaled air that contains oxygen moves through these pores and combines with the blood that is passing by in the capillaries. This blood is returning from the body and it contains a very low level of oxygen, but a relatively high level of carbon dioxide. After the blood in the capillaries combines with oxygen, it is pumped out of the lungs, into the heart and from there it is pumped back out to the body. This exchange of oxygen from the air to the blood happens quite easily because the alveoli and the capillaries are in such close contact; and it is so efficient because the surface area of the alveoli and the capillaries is enormous.

When people exhale, harmful waste products of metabolism (most importantly the carbon dioxide) move from the blood in the capillaries into the alveoli and out through the bronchial tubes and the nose and mouth. The alveoli are where these two gases, oxygen and carbon dioxide move in and out of the body. The basic purpose of the pulmonary system is to allow the movement of two gases, oxygen and carbon dioxide, in and out of the body. When people inhale, they take in oxygen, and with exhalation, people get rid of carbon dioxide.

What is COPD?

The name chronic obstructive pulmonary disease is a good description for the health disease. COPD is a chronic disease - it does not go away - and it causes problems by obstructing the flow of air in and out of the lungs, which are the primary organs of the pulmonary system.

Chronic obstructive pulmonary disease will be defined here as a chronic disease that causes permanent scarring to the lung tissue. It is a combination of two separate but closely related diseases: *emphysema* and *chronic bronchitis.* These diseases can occur by themselves but when they present together they are called COPD.

Emphysema is a disease that causes slow, progressive, and irreversible destruction of the lung tissue. Emphysema damages the alveoli. In a patient with emphysema, the alveoli become weak, enlarged, and scarred. Because of this, when a patient with emphysema inhales or exhales the normal elasticity of the alveoli does not function properly and they collapse under the pressure. Also, because the alveoli are scarred, oxygen and carbon dioxide cannot move into and out of the blood. The body must have oxygen and must

rid itself of carbon dioxide to survive and the alveoli are where these processes take place. If the alveoli do not function, the patient's respiratory status and the normal gas exchange that takes place in the lungs both suffer.

Chronic bronchitis is the other component of COPD. Chronic bronchitis happens when the bronchial breathing passages become permanently inflamed. This is almost always a result of cigarette smoking. The chemicals and the particles in the cigarette smoke irritate the sensitive lining of the bronchial tubes. When that happens, these airway passages become inflamed, they become swollen and narrowed, and large amounts of mucous are produced. As with emphysema, these changes prevent oxygen from going through to the blood when people inhale, and they prevent carbon dioxide from being expelled when they exhale.

There is also a disease called acute bronchitis. This is the same as chronic bronchitis but it is caused by an infection. It can be cured with antibiotics and rest, and it does not cause permanent inflammation of the bronchial tubes. Whereas, chronic bronchitis is defined as permanent inflammation of the bronchial tubes.

The person with COPD has bronchial tubes that are narrowed and swollen and alveoli that are scarred and have lost their elasticity. When someone with COPD inhales or exhales, air cannot effectively move in or out. To illustrate this difficulty with breathing, imagine trying to suck molasses through a tiny straw (the narrowed, swollen bronchial tubes) that collapses when it is stretched (the inelastic alveoli) and then trying to move it across a thick piece of cardboard

that has been placed over the end of the straw (the scarred alveoli). This is what happens with the person with COPD. First, the air cannot effectively move through the bronchial tubes because they have narrowed. Second, when air gets to the alveoli, it cannot move past them because the pores in the alveoli are covered with scar tissue and the alveoli collapse because they have lost their elasticity.

Causes Of COPD

There are a few unusual medical conditions that can cause COPD, and some cases of COPD can be caused by air pollution and chronic exposure to irritants in the air. Most cases of COPD are caused by chronic cigarette smoking. It may also be possible to develop COPD if a person is exposed to large amounts of secondhand smoke. There are also rare cases in which someone has inherited a genetic tendency for developing COPD. For those people, small amounts of smoking or exposure to low levels of chemicals or pollution may be enough to cause COPD.

Tobacco smoking accounts for approximately 90% of all cases of COPD. Approximately 20% of all cigarettes smokers will eventually develop COPD, and the more someone smokes and the greater the number of years that person smokes the greater the risk of developing COPD. Smoking cigars and/or a pipe can also cause COPD but the risk is much less. It is not clear why some people who smoke do not develop COPD.

Tobacco smoke is a very complicated compound. It contains thousands of chemicals that are toxic, such as carbon monoxide, cyanide, and tar. Other compounds act as irritants. These chemical toxins and the irritants are only present in tiny amounts but a smoker is exposed to

them on a constant, day-to-day basis. The result of this continual exposure of the lungs to these toxins and irritants is an intense inflammation and irritation of the lung tissue that slowly but surely overwhelms the body's defenses; the lungs simply cannot heal themselves or successfully fight off the "chemical assault." Given enough time, the irritation and inflammation progresses to irreversible damage, and the smoker has COPD.

What about secondhand cigarette smoke? Can exposure to smokers cause COPD? The answer is not clear. Secondhand smoke can damage the lungs but it is not certain whether secondhand smoke can cause damage that will progress to COPD.

Cigarette smoking is the primary cause of COPD but it is worth remembering that tobacco smoke has many other harmful health effects.

- Smoking increases the risk of developing heart disease by 2 to 4 times.
- Smoking increases the risk of having a stroke by 2 to 4 times.
- Smoking decreases circulation; many smokers have cold hands and feet, and this is because of poor circulation.
- Smoking causes lung cancer.
- Smoking has been associated with an increased risk for developing bladder cancer, cervical cancer, esophageal cancer, laryngeal cancer, pancreatic cancer, and many other malignancies.
- Smoking has been associated with reproductive disorders such as infertility, low birth weight, stillbirth, and sudden infant death syndrome (SID).

COPD Signs And Symptoms

Chronic obstructive pulmonary disease is a persistent, progressive disease. The disease gets worse as the patient gets older. Because of the damage to the alveoli and the changes in the bronchial tubes, people with COPD have low levels of oxygen in their blood and high levels of carbon dioxide in their blood. These abnormal levels are the basic cause of the signs and symptoms of COPD. Some of the signs and symptoms of COPD are highlighted here. There is:

- Difficulty breathing
- Exercise intolerance
- Chronic cough
- Excessive production of sputum - also known as a productive cough
- Blue coloration of the fingernails - also known as cyanosis
- Tachypnea, which is defined as rapid breathing. The normal respiratory rate is 12-20 breaths a minute. This is an *average*, and the normal respiratory rate varies slightly from person to person.
- Wheezing
- Confusion, which would happen in advanced stages of the disease when the oxygen level in the blood gets very low
- Barrel chest
- Abnormally thick fingernails, also called *clubbing*.

Cough, exercise intolerance, and a productive cough are probably the most common and the most important of these signs and symptoms. In the first few years, a patient with COPD can learn to live with the disease. Medications along with exercise, stopping smoking and other lifestyle changes, can help but the disease always gets worse and over time.

Many patients with COPD cannot even walk a few steps without becoming short of breath and needing to rest. They become more dependent on medications and oxygen, and they are also more susceptible to lung infections.

Exacerbation Of COPD

One of the common features of COPD is an event called *exacerbation of COPD*. Exacerbation means worsening, and an exacerbation of COPD is an episode in which a patient who has been stable and breathing well suddenly becomes short of breath. The patient will also have increased coughing and increased sputum production. Other signs and symptoms such as fatigue, fever, sore throat, and weakness may develop, as well. If the patient's respiratory function and gas exchange capability are especially poor, he or she may become confused, cyanotic, and tachypneic.

Exacerbations are common, and most of them are caused by a bacterial or viral infection in the lungs. However, in many cases, there is no evidence of an infection and the reason for the sudden deterioration cannot be found but regardless of the cause, an exacerbation of COPD is a very serious problem.

People with COPD have poor respiratory function. Their gas exchange, the oxygen delivery and carbon dioxide excretion, is poor. Any further disruption in the patient's ability to breath and will require that the patient be hospitalized and placed on mechanical ventilation.

Emergency Care

Most people who are having an exacerbation of COPD will have some dramatic signs and symptoms. They will be tachypneic, they will likely have a constant cough, and wheeze. Speaking in sentences of more than a few words will be impossible, and it is likely their skin color will be bad. They may be sweaty and pale and these people will also say their breathing is bad. Phrases such as "I just can't catch my breath," or "I feel like I can't breathe," are common.

However, for some people the signs and symptoms of a COPD exacerbation can be a bit more difficult to detect. The patient who is having an exacerbation may not appear to be in acute distress but if a caregiver has experience caring for a patient with COPD exacerbation, the caregiver may notice subtle changes in behavior or appearance, small clues that indicate "something's not right." In these situations, the patient's input is invaluable since the patient will be the first one to know if an exacerbation is happening. For example, a patient who does not have obvious signs of distress may indicate that he or she is experiencing COPD exacerbation by saying, "My breathing just doesn't feel normal." Serious attention should be given to statements like this even if more obvious signs are absent.
If a patient appears to be having an exacerbation, the CNA should immediately notify a supervisor. Some patients may have a hand-held nebulizer that they have been instructed to use in these situations. This is called a rescue inhaler, and they are one of the bronchodilators such as albuterol. These inhalers provide rapid relief, usually within minutes, and if the patient has one of these, the patient may need help using it.

Aside from notifying a supervisor and helping the patient find and use the rescue inhaler, the patient should be encouraged to rest. The more active someone is the more oxygen the body needs, so activity and exacerbation of COPD are not a good combination. The medical clinician should also try and maintain a calm and reassuring demeanor. Even for people who have experienced it before, an exacerbation of COPD is frightening. No matter how hard they try and no matter what is done they cannot "catch their breath," and the high level of emotion can make breathing more difficult. The CNA should stay calm, and try to help the patient stay calm.

Many people who have COPD use supplemental oxygen. A natural response to someone who is having difficulty breathing during an exacerbation would be to increase the flow of oxygen, and the patient may ask the CNA to do so. However, the CNA should *not* increase the flow of oxygen.

The rate of oxygen flow for a COPD patient is prescribed by a physician, and it can only be changed if a physician has ordered the flow to be increased or decreased. There is also some evidence that increasing oxygen flow to someone who has COPD may, at a certain point, be harmful by decreasing the respiratory rate. This will be explained later on.

COPD Treatments And Lifestyle Adjustments

There is no cure for chronic obstructive pulmonary disease. COPD can only be treated but as it is a progressive disease that the patient will eventually succumb to the disease and die from respiratory failure or other complication from COPD. However, COPD can be managed. A

patient's life expectancy can be significantly expanded, and the quality of life can be greatly improved. The treatments for COPD can be divided into two groups: 1) Lifestyle adjustments (such as smoking cessation, diet/hydration and exercise), and 2) Medical treatments.

Smoking Cessation

Smoking cessation is the most important and the most effective treatment for COPD. Within several days of smoking cessation, the lung irritation and some of the lung damage caused by constant exposure to cigarette smoke begins to heal. Over the next few months, lung function improves, the chronic smoker's cough diminishes, and the patient's subjective complaints of shortness of breath decrease. Other health benefits, for example, decreased risk of heart disease and stroke, accumulate the longer the person goes without smoking.

Of course, stopping smoking is difficult. Nicotine is physically addictive in much the same way as illicit drugs such as cocaine and heroin. Most people will need to be enrolled in a smoking cessation program and/or use nicotine gum or patches. It can be a long difficult process to stop smoking, but for someone who has COPD, it is not an option.

Unfortunately for the person with COPD, much of the damage to the bronchial tubes and the alveoli is permanent. If the patient stops smoking the harm to the lungs can be limited. Areas that were damaged may recover so long as the damage was not irreversible. The longer someone smokes and the more cigarettes he or she smokes, the greater will be the damage to the lungs and there will be less

chance of recovering lung tissue. This will lead to COPD and faster progress of the disease.

Once COPD occurs, even with smoking cessation and some repair to reversibly damaged tissue, the decrease of pulmonary function will continue and slowly worsen over time.

Diet And Hydration

Good nutrition is very important for someone who has COPD. There is evidence that clearly shows that people who have COPD and have a poor nutritional status have a decreased tolerance for exercise, their lung function is poor, and they die earlier. Poor nutrition can weaken the immune system and make the patient susceptible to infections. Unfortunately, COPD often makes people nauseated and decreases their appetite. The patient should be encouraged to eat well and they should have the benefits of a healthy diet explained to them.

Good hydration is also a critical part of self-care for the person who has COPD. Dehydration thickens secretions in the lungs. This increases the risk of pulmonary infections, and it also makes it more difficult for the patient to cough up and expel those secretions.

Exercise

Exercise for the COPD patient can increase exercise tolerance, help prevent lung infections, and improve mood. Aerobic exercises such as bike riding, swimming, walking, *etc.*, and strength building exercise such as weight lifting should only be initiated if the patient's physician has approved.

Starting an exercise program is never easy and sticking with a program, particularly in the beginning when it is hard to see the benefits, is very difficult. This is especially so for the patient with COPD who has decreased exercise tolerance. The patient with COPD should be encouraged to participate in pulmonary rehabilitation as best as possible.

Discussing the details of an exercise program for someone with COPD is beyond the scope of this section, but if a CNA is working with a patient who has COPD and that patient is actively exercising, part of the CNA's responsibility is patient safety when the patient is exercising. The CNA should remind the patient that if he or she develops shortness of breath or chest pain while exercising, exercise should be stopped immediately.

Some patients who have COPD may also benefit from breathing exercises. These are exercise that target the muscles involved in breathing. The number of times to do them and how often to do them will be prescribe by the patient's physician, or perhaps by a physical therapist or respiratory therapist. Examples of these breathing exercises are reviewed below.

Pursed Lip Breathing

- The first step is to relax the neck shoulder muscles.
- Breathe in for two seconds through the nose while keeping the mouth closed.
- Finish by breathing out for four seconds through pursed lips. If someone cannot breathe out for four seconds, they can simply

breath out for two seconds, the same amount of time as was spent breathing in.

Diaphragmatic Breathing

- The patient should be laying on his or her back. If need be, a pillow can be placed under the knees for support.
- Place one hand on the stomach, just below the rib cage.
- Put the other hand on the chest.
- While counting to three, inhale through the nose as deeply as possible. Try and keep the chest from moving during the inhalation. The stomach and the lower ribs should be felt moving up, but the chest should remain still.
- Tighten the stomach muscles and exhale for a count of six through slightly pursed lips.

Medical Treatment For COPD

Chronic obstructive pulmonary disease cannot be cured but it can be managed with supplemental oxygen and medications.

Supplemental Oxygen

It has been proven that people who have COPD and use supplemental oxygen live longer and have better exercise tolerance. Oxygen therapy in a healthcare facility will be managed by a respiratory therapist or a registered nurse. In a home setting, a commercial service will provide delivery and equipment. Many patients can, after some instruction and initial supervision, manage their oxygen therapy at home without

assistance as long as they have someone to contact if there are problems or questions.

A CNA does not have primary responsibility for managing a patient's oxygen therapy but a CNA can and should be able to help a patient use oxygen safely. If a patient with COPD requires supplemental oxygen, the CNA should perform the following steps.

Assess Oxygen Therapy for Effectiveness

If the patient is complaining of breathing difficulties, or in the CNA's opinion the patient's respiratory status is declining, the oxygen therapy may not be working and a supervisor should be notified. The decline in respiratory status could be due to the equipment malfunctioning but this would be unusual. It is more likely that the patient is having an exacerbation and the patient needs an adjustment in the oxygen or medications.

Use Oxygen Correctly

The CNA should remember to *never* change the rate of oxygen delivery and to not allow the patient to change the rate of delivery. Most people who are using supplemental oxygen are receiving a flow rate of 2-3 liters/minute, more or less.

Use Oxygen Safely

Oxygen supports and accelerates combustion, so oxygen must never be used near open flames or by someone who is smoking.

Keep Oxygen Equipment Clean

There is a variety of ways supplemental oxygen can be delivered but the nasal cannula is probably the most common. The cannula should be washed with soap and water several times a week and it should be periodically replaced.

The CNA should remember that people with COPD are susceptible to respiratory infections, and oxygen equipment that is not cleaned can become contaminated with bacteria.

Keep Oxygen Use Comfortable

Oxygen flowing directly into the nostrils can be very drying. A water-based moisturizer can be used in the nose to prevent dry and sore nasal passages. Also, the CNA should check the skin where the cannula loops around the ears. This area can become red and irritated from the constant contact with the plastic, and a bit of gauze placed there will provide protection.
It was mentioned earlier that increasing the flow of oxygen could potentially harm someone who has COPD. The basis for this is that in COPD the mechanism for breathing is different than it is for someone who does not have the disease.

Most people often think that the function of breathing is to take in oxygen. This is only partly true. Much of the reason people breathe is to get rid of carbon dioxide. However, because COPD damages the lungs, patients with COPD cannot eliminate carbon dioxide efficiently and they have abnormally high levels of carbon dioxide in their blood. Eventually, these people become adapted to the high levels of carbon dioxide. At that point, the drive to breathe, which is directed by the

brain, comes from the lack of oxygen in the blood, *not* the need to expel carbon dioxide.

If the patient with COPD is given too much oxygen, the body senses that no oxygen is needed and there is interference with drive to breathe. This is why oxygen must be used cautiously in the patient who has COPD.

Medications

There are three types of medications that are used to treat people who have COPD: 1) bronchodilators, 2) corticosteroids, and 3) anticholinergics.

Bronchodilators

Bronchodilator medications open the swollen, narrow bronchial tubes. Bronchodilators are usually used in the form of handheld inhalers. The inhalers are small, pressurized canisters that fit into the hand. The patient places the nozzle of the inhaler in his or her mouth, presses a trigger that releases the medication and inhales.

Albuterol is a commonly used bronchodilator. The handheld inhalers are effective if used correctly, but the patient needs to be able to make a tight seal around the nozzle and coordinate a deep inhalation with the delivery of the medication. If the patient complains that his or her bronchodilator is not working, someone needs to make sure the patient is using it correctly.

Albuterol and the other bronchodilators can also be used in nebulizers. Albuterol syrup is also available, but this is typically reserved for use in children. A commonly used brand of handheld bronchodilator inhaler is Proventil®, which contains albuterol.

The bronchodilators are designed to open the bronchial passages and to provide relief for approximately 4-6 hours. Someone who is having difficulty breathing may be tempted to use a handheld bronchodilator more often than every 4-6 hours.

Using a bronchodilator for rescue therapy in between the normal, scheduled use of a bronchodilator is acceptable but if the prescribed frequency of an albuterol inhaler is not helping, more is *not* better and could be harmful. The patient's physician should be called if he or she feels that the bronchodilator is not providing relief.

Corticosteroids

Some patients with COPD hear the word corticosteroid and associate these medications with the illegal steroids used by some athletes. Corticosteroids are different. These are oral medications or medications delivered by handheld inhalers that decrease inflammation in the lungs.

A commonly used brand of corticosteroid inhaler is Flovent®, which contains fluticasone.

Anticholinergics

Anticholinergic medications are used in inhalers. They work by opening the bronchial tubes but in a different way than the albuterol type of drugs. Spiriva® is a common anticholinergic used for people with COPD. Some handheld inhalers will have albuterol and an anticholinergic; Combivent® is a commonly used combination brand.

Antibiotics

Antibiotics should only be used if a person with COPD has a lung infection. If the patient with COPD expresses that he/she has been taking an antibiotic because they have been feeling bad, and they are doing so without a physician's orders, the CNA should notify a supervisor immediately. Taking antibiotics without a physician order can cause lung infections that are dangerous and difficult to treat.

Vaccinations

People who have COPD should make sure that they have a yearly flu shot, and many patients who have COPD should receive a pneumonia vaccination.

Lung Resection

Lung resection is a surgical procedure that can be used to treat COPD. The damaged areas of the lung are removed - resected - and for some patients this is as close to a cure as possible. However, this procedure is only suitable for a small percentage of people who have COPD.

Caring For The Patient With COPD

Caring for the patient with COPD can be very challenging. Many of these patients have limited ability to help themselves. Because even a little bit of physical exertion can be very tiring, the amount of activities they can perform can sometimes be severely limited.

Chronic obstructive pulmonary disease can be frightening. The exacerbations may clear up with rest, oxygen, and bronchodilators, but the exacerbations can also be very severe. The patient may need to be admitted to the hospital and placed on a ventilator. Sometimes there is a clear reason why these exacerbations happen, but quite often there is not. Because of these unpredictable episodes of shortness of breath, many people with COPD must live with the constant fear that suddenly and without warning they will not be able to breathe.
As a result of these physical and psychological issues, many people with COPD require a lot of physical assistance and emotional support. The following are the areas a CNA will need to concentrate on and be familiar with when caring for a COPD patient.

Emotional Support

The patient with COPD often feels very vulnerable. For no apparent reason and without warning, that person may not be able to breathe. That leaves the COPD patient feeling dependent on his or her caretakers.

It is important that the CNA let the patient with COPD know that he or she understands the disease. The CNA must also communicate to them and demonstrate to them that he or she is reliable and dependable. Also, because COPD exacerbations can happen

unpredictably, these patients often feel a great need to establish order, regularity, and control over their environments. Doing so makes them feel secure, and it is important that the CNA understand this and within reason, support them in this effort.

Physical Assistance

This aspect of care of the patient with COPD is very individualized. The patient with COPD will often need help dressing and ambulating, and they may need help eating their meals. It will certainly take these patients much longer to complete any physical task. The body needs oxygen to perform physical work, and the COPD patient does not have adequate amounts of oxygen in his or her blood.

It will take time for the CNA to determine exactly what each patient with COPD is capable of doing. This is also something that the CNA needs to discuss with the patient. Many people with COPD have been living with the disease for a long time. They know exactly what they can and cannot do.

Healthcare professionals many times feel that they must have all the answers. It is easy to forget that patients may know about the disease they are suffering from, and can tell the healthcare professional what they are capable of doing and what they need.

Monitoring Complications

Monitoring complications is relatively simple. Monitor the patient for any respiratory difficulties, failure to respond to therapies, or any problems with the patient's cardiac or neurological status, such as chest pain, confusion, or drowsiness.

Notifying a Supervisor

A CNA should notify a supervisor if a patient with COPD is eating poorly, does not want to exercise, or becomes short of breath more than usual when performing daily activities. When a CNA is caring for a patient with COPD, he or she should notify a supervisor *immediately* when the patient:

- has a fever.
- complains of shortness of breath.
- has tachypnea.
- has skin that is pale or blue.
- is requesting that the CNA increase the flow of oxygen.
- has used an inhaler or taken another medication but still complains of shortness of breath.

Summary

The pulmonary system, also called the respiratory system, is responsible for the movement of two gases, oxygen and carbon dioxide, in and out of the body. When people inhale, they take in oxygen, and when they exhale, carbon dioxide is eliminated. The body must have oxygen and must rid itself of carbon dioxide to survive and the alveoli are where these processes take place.

Chronic obstructive pulmonary disease is a combination of two separate but closely related diseases: *emphysema* and *chronic bronchitis.* These diseases can occur by themselves but when they present together they are called COPD.

When a patient with COPD inhales or exhales, the normal elasticity of the alveoli does not function properly and they collapse under the pressure. Also, when the alveoli of a COPD patient are scarred, oxygen and carbon dioxide cannot move into and out of the blood. If the alveoli do not function, the patient's respiratory status and the normal gas exchange that takes place in the lungs both suffer.

Chronic obstructive pulmonary disease cannot be cured but it can be managed with supplemental oxygen and medications. Lifestyle changes such as exercise and stopping smoking can help but the disease always gets worse and over time. The disease will continue to progress until the patient succumbs to the disease and dies from respiratory failure or other complication from COPD.

As a result of physical and psychological issues, many people with COPD require a lot of physical assistance and emotional support. The CNA will need to concentrate on specific aspects of patient care when caring for an individual diagnosed with chronic obstructive pulmonary disease.