

THE FACTS

Sleep apnea is a disorder in which a person stops breathing during sleep. The Greek word "apnea" literally means "without breath." Sleep apnea is estimated to affect between 12 and 25 million people, although less than one million people are actually diagnosed.

Some studies have shown sleep apnea increases the chances of high blood pressure, stroke, heart attack, heart failure, pulmonary hypertension, diabetes, and kidney failure. Risk factors include being male, overweight, and over the age of forty, although it can strike anyone at any age, even children.

There are three types of sleep apnea: obstructive, central, and mixed.

Obstructive sleep apnea (OSA) is most common. It occurs when tissues in the upper throat collapse at intervals during sleep, thereby blocking the passage of air, which causes the person to stop breathing temporarily. When breathing resumes, it is often with a loud snore followed by heavy breathing. The person may or may not awaken.

Central sleep apnea (CSA) is less common. It is caused by a problem with the central nervous system, most likely a failure of the brain to signal the airway muscles to breathe. Oxygen levels drop abruptly and usually the sleeper wakes.

Mixed apnea occurs when OSA and CSA occur together.

SYMPTOMS

Common symptoms of sleep apnea include the following:

- Excessive daytime sleepiness, fatigue, especially if the person has obstructive sleep apnea
- Morning headache
- Irritability
- Impaired mental or emotional functioning
- Snoring
- Heartburn

Symptoms in children include longer sleep times than normal, morning headaches, bed-wetting, hyperactivity, failure to grow and gain weight, and more effort in breathing.

To detect possible sleep apnea, a nurse may ask patients the following questions:

- Has anyone observed an irregular breathing pattern when you are sleeping or napping?
- Do you gasp for breath during sleep?
- Do you snore?

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- Do you fall asleep easily or when you don't intend to?
- Do you feel unrefreshed when you wake up in the morning?
- Do you have difficulty concentrating or remembering things?
- Do you have a headache in the morning or when sleeping during the night?

It is important to ask these questions because some caregivers might overlook sleep apnea symptoms thinking they are part of the patient's chronic medical condition. Patients with degenerative neuromuscular diseases are at risk for sleep-disordered breathing primarily because of respiratory muscle weakness. Degenerative neuromuscular disease patients may experience sleep apnea in addition to their primary neurological problem for which they are receiving homecare services. Recognizing sleep apnea is especially difficult within this patient group. They already exhibit symptoms such as fatigue and shortness of breath.

Most adults require seven to eight hours of sleep a night. People tend to sleep more lightly and for shorter periods of time as they age, although they still require about the same amount of sleep as in early adulthood. About half of all people over 65 have frequent sleeping problems such as insomnia. Experts say if a patient feels sleepy during the day, they haven't had enough sleep. Further, if a patient falls asleep routinely within five minutes of lying down, that person may have severe sleep deprivation or even a sleep disorder.

Who has sleep apnea?

More men than women have been diagnosed with sleep apnea. It is most common in adults over 65, although it can affect anyone at any age. Sleep apnea is prevalent in obese people. However, many people with sleep apnea, especially women and children, are not obese. Sleeping on one's back seems to increase the number and severity of episodes of sleep apnea. Heavy smokers are more likely to experience sleep-disordered breathing as are people who drink alcohol before sleeping.

HEALTH EFFECTS OF SLEEP APNEA

Among the problems that have been associated with sleep apnea are high blood pressure, stroke, heart attack, heart failure, pulmonary hypertension, diabetes, and kidney failure.

New research indicates that adults with sleep apnea are more likely to die suddenly from cardiac causes while they are asleep, a pattern that is opposite to that of the general population.

TREATING SLEEP APNEA

The most common treatment for sleep apnea is positive airway pressure systems. These machines deliver slightly pressurized air into the airway through a nasal mask or pillow. Other treatment options include lifestyle changes and surgery.

Positive airway pressure

The most common and effective treatment for sleep apnea is a device that delivers slightly pressurized air into the airway through a specially designed nasal mask or pillow. The mask does not breathe for the patient. The

flow of air creates enough pressure when the person inhales to keep the airway open.

CPAP

One type of system is a nasal continuous positive airway pressure (CPAP). It consists of a machine connected by a tube to a mask that fits over the nose. The machine supplies a steady stream of air through the tube and applies a sufficient air pressure to prevent the tissues from collapsing during sleep.

BiPAP

Bilevel positive airway pressure (BiPAP) systems have a sensing feature that helps determine and vary the appropriate pressure depending on whether a person is inhaling or exhaling. Greater pressure is needed on inhalation and less on exhalation. These machines are typically more comfortable but also more expensive than the CPAP and may not be covered by insurance.

Auto-CPAP

Auto-CPAP devices use technology to customize air pressure, required for some patients with seasonal allergies or for patients who find the steady flow of pressure annoying. Air pressure is generally delivered at a low overall rate and is adjusted either gradually or rapidly as problems require. These devices are more expensive than those that provide continuous airflow. Since the airflow is generally low, these devices improve compliance.

Lifestyle changes

Lifestyle changes such as losing weight, quitting smoking, and exercising are often initially prescribed to treat sleep apnea. Because alcohol can further relax the airway muscles, it should be avoided four hours before sleep. In addition, simply altering the sleep position from the back to side or stomach helps treat sleep apnea.

Dental Devices

There are several dental devices and treatments for sleep apnea. A common device is a splint that holds the tongue in a specific position to keep the airway open. Another device looks similar to a sports mouth guard. The mandibular advancement device (MAD) forces the lower jaw forward, which keeps the airway open. Dental devices are not as effective as CPAP therapy in reducing sleep apnea. Some patients experience jaw pain and other discomfort.

Surgery

There are several different surgical procedures that eliminate sleep apnea. However, surgery is performed only if other treatments have failed and symptoms are severe.

COMPLIANCE

Studies have reported that long-term compliance with CPAP and BiPAP systems is low.

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Sleep Apnea

The device, particularly the mask, often produces anxiety. Patients may actually experience less sleep in the first couple days of usage. Having a properly fitted mask is extremely important. If the patient is experiencing claustrophobic symptoms, a lightweight and transparent mask or a mask with nasal pillows may be used.

Other problems contributing to noncompliance are irritation in the nose and throat, a feeling of claustrophobia, and eye irritation. Some people experience chest muscle discomfort due to increased lung volume. The discomfort diminishes over time. The machine's noise can be bothersome to the patient or family. If the aide senses that the patient is having difficulty, the aide should document this and report it to the nurse.

CPAP and BiPAP machine maintenance

The nurse will assign any duties regarding machine maintenance. The mask must be rinsed in warm, soapy water after each use. The system filter requires cleaning or replacement to prevent the machine from internal dust accumulation. Instructions are included with each machine.

CASE STUDY**CPAP Compliance**

Colleen visits Mr. Mathers twice a week. He is 82 years old and suffers from obesity and diabetes. He was recently diagnosed with sleep apnea. He was prescribed a CPAP machine and given instructions from the DME provider on how to use it.

On a scheduled visit, Colleen notices the machine and immediately asks Mr. Mathers how he is doing with it. Mr. Mathers doesn't offer much response and changes the subject to another health problem. Mr. Mathers' daytime sleepiness and irritability hasn't improved, although Colleen doesn't expect instant improvement. As assigned, Colleen rinses the mask with warm, soapy water.

On the next visit, Colleen notices the CPAP machine is in exactly the same place on the nightstand. It looks as though it may not have been used. She presses Mr. Mathers a bit and asks how he is doing with his machine. He finally admits he doesn't like it. He says the first night it kept him awake more than normal due to noise and being uncomfortable. He says the mask rubs his nose and makes him feel as though he's gagging.

She explains the benefits of using the machine. For example, he'll feel rested in the morning and be more alert. He still doesn't seem to accept the idea.

Colleen reports the noncompliance to her supervisor. She also tries to help Mr. Mathers accept the CPAP machine. She first asks him to hold the mask, without strapping it on, while he is sitting up. She then starts the airflow at a low pressure setting. She lets him take a few breaths this way. Once he's used to the airflow, she asks him to strap on the mask. She makes the proper adjustments to the mask, making sure it's not too tight to hurt and not too loose so that air leaking irritates the eyes. She encourages him to breath for a couple of minutes and then asks him to lie down.

Mr. Mathers seems to be less anxious and says he appreciates the time and patience Colleen has shown. He says he'll try to use the CPAP that night.

Colleen completely documents her concerns about Mr. Mathers' noncompliance, noting the techniques and information she used to encourage compliance.

SOMETHING TO THINK ABOUT

- » What will be Colleen's role in future visits regarding the CPAP?
- » How important is reporting noncompliance in this case?
- » What are the next steps for Colleen assuming further noncompliance?

DIRECTIONS: READ EACH QUESTION CAREFULLY. THEN, DETERMINE THE BEST ANSWER. CHECK THE CORRESPONDING BOX ON YOUR ANSWER SHEET. DO NOT WRITE ON THIS POST-TEST.

1. What are the three types of sleep apnea?
 - a. Obstructive, conical, and mixed
 - b. Obnoxious, central, and mixed
 - c. Obstructive, central, and mixed
 - d. None of the above
2. Since sleep apnea is easily diagnosed, most patients are aware they have it.
 - a. True
 - b. False
3. What is the most common treatment for sleep apnea?
 - a. Oral appliances
 - b. Continuous positive airway pressure
 - c. Surgery
 - d. Weight loss
4. Which of the following best describes sleep apnea?
 - a. Sleep apnea is a condition in which a person snores during the night.
 - b. Sleep apnea is the same as sleep walking.
 - c. Sleep apnea is a condition in which a person stops breathing.
 - d. Sleep apnea is a normal condition that does not require treatment.
5. What are some symptoms of sleep apnea?
 - a. Headache
 - b. Loss of concentration
 - c. Irritability
 - d. All of the above
6. In what group of patients is sleep apnea most prevalent?
 - a. Under the age of 10, obese
 - b. Over the age of 40, smoker
 - c. Over the age of 40, smoker and obese
 - d. Between the age of 10 and 40, athletic

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POST-TEST, PAGE 2

7. What health effects are associated with sleep apnea?

- a. High blood pressure and congestive heart failure
- b. High blood pressure, stroke, and diabetes
- c. Kidney failure and Alzheimer's
- d. All of the above

8. How does alcohol affect sleep apnea?

- a. It has no effect.
- b. It worsens sleep apnea by relaxing the airway muscles further.
- c. It improves sleep apnea by causing the patient to relax and accept wearing the mask.
- d. It improves sleep apnea by putting the patient to sleep.

9. Sleeping on one's back is the best position for patients with sleep apnea.

- a. True
- b. False

10. What problems may contribute to noncompliance in using the CPAP machine?

- a. Eye irritation
- b. Dry mouth
- c. Claustrophobia
- d. All of the above

— END —

Sleep Apnea

NAME _____ DATE _____

DIRECTIONS: READ EACH QUESTION IN THE POST-TEST CAREFULLY. THEN, DETERMINE THE BEST ANSWER. CHECK THE CORRESPONDING BOX ON THIS ANSWER SHEET.
DO NOT WRITE ON THE POST-TEST.

MULTIPLE CHOICE ANSWER SHEET

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| 1. | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c | <input type="checkbox"/> d |
| 2. | <input type="checkbox"/> a | <input type="checkbox"/> b | | |
| 3. | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c | <input type="checkbox"/> d |
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| 10. | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c | <input type="checkbox"/> d |

INSTRUCTOR'S COMMENTS/SIGNATURE

Signature _____ RN Date _____

