

Student Name: _____

Case Study Medical Surgical I- Virtual /Clinical –Summer 2020 Week 3: Obstructive Sleep Apnea

Scenario

S.R. is a 69-year-old man who owns his own business. The stress of overseeing his employees, meeting deadlines, and carrying out negotiations has led to poor sleep habits. He sleeps 3 to 4 hours a night. He keeps himself going by drinking 2 quarts of coffee and smoking 3 to 4 packs of cigarettes per day. He weighs 280 pounds and does not use alcohol. His wife complains that his snoring has become difficult to live with.

1. As the clinic nurse, what routine information would you want to obtain from S.R.?
 - a. Have you had any unexpected weight changes
 - b. Your normal eating habits
 - c. Your daily routine
 - d. Your sleep habits/bedtime/duration of sleep/light sleeper?
 - e. What prescription or OTC medications you are taking?
 - f. Complete family History

CASE STUDY PROGRESS

After interviewing S.R., you report the following information to the provider: blood pressure (BP) 164/90, pulse 92 beats/min, respirations 18 breaths/min, SaO₂ 90% on room air. S.R. is under considerable stress, has gained 50 pounds over the past year, and has a history (Hx) of tobacco and caffeine abuse. He complains of (C/O) difficulty staying awake, wakes up with headaches most mornings, and has midmorning somnolence. He is depressed and irritable most of the time and reports difficulty concentrating and learning new things. He has been involved in 3 auto accidents in the past year.

Your examination is normal except for multiple bruises over the right ribcage. You inquire about the bruises, and S.R. reports that his wife jabs him with her elbow several times every night. In her own defense, the wife states, “Well, he stops breathing and I get worried, so I jab him to make him start breathing again. If I don’t jab him, I find myself listening for his next breath and I can’t go to sleep.” You suspect _____ sleep _____ apnea

2. Identify two of the main types of apnea and explain the pathology of each.

- a. Obstructive sleep apnea(OSA) is caused by repetitive upper airway obstruction during sleep as a result of narrowing of the respiratory passages. Patients with the disorder are most often overweight, and some patients have airway obstruction because of a receding jaw that results in inadequate room for the tongue, hereby impeding air flow during respiration.
- b. Central sleep apnea(CSA) is characterized by a lack of drive to breathe during sleep, resulting in repetitive periods of insufficient ventilation and compromised gas exchange. There are several manifestations of CSA, including high altitude-induced periodic breathing, idiopathic CSA, narcotic-induced central apnea, obesity hypoventilation syndrome, and Cheyne-Stokes breathing.

3. Identify at least five signs or symptoms of obstructive sleep apnea (OSA), and star those symptoms that S.R. has.

Loud snoring

Sleepiness during the daytime

Enlarged tonsils and large tongue volume

Recessed mandible

Morning headaches

Irritability, mood swings, depression,

Learning &/ or memory difficulties

Sexual dysfunction

4. What test(s) help the provider diagnose OSA?

- a. The most important diagnostic test is an all-night polygraphic recording(polysomnography) this will differentiate between obstructive and non-obstructive.

CASE STUDY PROGRESS

The primary care provider (PCP) examined S.R. and documented a long soft palate, recessed mandible, and medium-sized tonsils. S.R.'s overnight screening oximetry study showed 143 episodes of desaturation ranging from 68% to 76%; episodes of apnea were also documented. He was diagnosed with OSA with hypoxemia, and a full sleep study was ordered.

5. The PCP asks you to counsel the patient about lifestyle changes. Name three topics you should address with S.R.

- a. Avoiding alcohol or muscle relaxants
- b. Losing weight
- c. Many people benefit from sleeping at a 30-degree elevation of the upper body or higher. Doing so helps prevent the collapse of the airway.
- d. Lateral positions(sleeping on a side), as opposed to supine positions(sleeping on the back)are also recommended as a treatment for sleep apnea.

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S.R. returns for a follow-up (F/U) visit after being diagnosed with OSA. He reports he has lost 10 pounds, but there has been little improvement in his symptoms. He states he fell asleep while driving to work and wrecked his car. He wants to discuss further treatment options.

6. What are the treatment options for OSA? Describe each

a. CPAP Therapy

- i. CPAP stands for Continuous Positive Airway Pressure. CPAP therapy provides a constant airflow which holds the airway open so that uninterrupted breathing is maintained during sleep. This eliminates Sleep Apneas and allows the patient to get a restful sleep. A CPAP machine blows one constant pressure. Your ideal pressure was determined during your sleep study. However, many factors can affect your ideal pressure over time, like weight fluctuations and even sleeping positions. CPAP therapy is traditionally provided through a nasal mask that seals around the nose. However, more innovative, comfortable and better sealing options are beginning to emerge.

b. C-Flex/Expiratory Pressure Relief (EPR)

- ii. C-Flex/EPR is a feature that makes breathing back against CPAP pressure easier to do. Independent studies conducted by leading universities indicate that patient comfort, and therefore, patient CPAP compliance, is higher with machines that use this.

c. APAP Machine

- iii. An APAP(Automatic Titrating Positive Airway Pressure)machine automatically adjusts on a breath by breath basis to blow the minimum pressure needed to keep your airway open during sleep. This allows your machine to provide you with your ideal pressure nightly. APAPs tend to be more advanced, more feature rich and more expensive than CPAP machines.

d. BiPAP and BiPAP ST

- iv. A BiPAP (Bi-Level Positive Airway Pressure) alternates blowing two set pressures, a higher pressure for inhalation and a lower pressure for exhalation. A BiPAPST Machine is a non-invasive ventilator. ST stands for Spontaneous Timed. A BiPAP has two set pressures but some patients require a backup timed response in which the BiPAP will initiate a breath if a breath is not taken within the set timed parameters. For example, a BiPAPST might be set with an inhale pressure of 10 and an exhale pressure of 5 with a BPM(BPM=Breath Per Minute)of 12. A BiPAPST will not breathe for you but will initiate a breath if you do not inhale 12 times a minute.

CASE STUDY PROGRESS

S.R. and the PCP decide on the least invasive treatment—continuous positive airway pressure (CPAP). The provider writes a prescription for CPAP. The patient has a choice of which durable medical equipment (DME) company he wants to get his equipment from. You help him by giving him the names of 3 reputable companies and advise him to call his insurance company to find out how much they will pay and how much he will be responsible for

7. S.R. calls in 2 weeks with C/O dry nasal membranes, nosebleeds, and sores behind his ears. What advice would you give S.R.?
- a. I would advise S.A. to use a nasal saline spray at bedtime. As well as making sure that your mask fit well. Then I would tell S.R. that if you develop skin deterioration or sores, such as on your nose, tell your doctor promptly.

Reference:

Hinkle, J. Cheever, K. (2018) Brunner & Suddarth's Textbook of Medical-Surgical Nursing
Edition. Philadelphia, PA: Wolters Kluwer

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