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The background of the cover features a composite image. At the top, a person's eyes are visible. Below them, a medical monitor displays a circular endoscopic view with a red and orange structure. A hand in the foreground holds a small blue pill cam. To the right, a larger blue endoscopic device with several lenses is shown. The overall color scheme is blue and white.

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Guide to Obstructive Sleep Apnea

What you need to know about this sleep condition

BY LOGAN KUGLER

OBSTRUCTIVE SLEEP APNEA, A CONDITION affecting more than 12 million Americans, is characterized by temporary breathing interruptions during sleep. "What happens with someone with sleep apnea is that their upper airway collapses or narrows during sleep and this causes them to be deprived of oxygen," says Christine Won, M.D., a sleep medicine specialist at the University of California San Francisco Medical Center. "Their oxygen levels will dip and they will have frequent arousals," sometimes as many as a hundred times a night.

"Muscles relax as a normal part of sleep, causing the airway to close," adds Sigrid C. Veasey, M.D., associate professor of medicine, at the Penn Sleep Center at the University of Pennsylvania. "But in patients with sleep apnea, oxygen levels in cells drop too low, sending an arousal signal to wake by gasping for air, which results in bad sleep quality."

WHO IS AT RISK

Sleep apnea is most predominant among people between 40 and 60 years old. It is also associated with obesity and loud snoring. "Weight can exacerbate any predisposition to sleep apnea," says Dr. Won. It can even cause the condition, she says, "because you accumulate fat not only in your periphery, but also in your airway and that can lead to airway crowding." Neck size is another risk factor, especially in men when circumference is greater than 17 inches. "Postmenopausal women are also at risk," Dr. Won says.

Sleep apnea can even affect children. "Sometimes children are diagnosed with attention deficit disorder, but what they really have is a sleep disorder that's being untreated," Dr. Won says.

THE SYMPTOMS

Even if you aren't experiencing any known

nocturnal symptoms, a number of daytime symptoms may point to sleep apnea, Dr. Won notes. Of them, sleep that's not refreshing is the most common. "You may wake up after eight to 10 hours of sleep and still want to go back to bed," explains Dr. Won. She says that patients are also referred to her because of mood problems such as depression, anxiety and attention-deficit disorder, but "sometimes sleep problems are really at the root of those things." Cardiac problems such as uncontrollable hypertension, pulmonary hypertension and refractory arrhythmias are also symptoms of sleep apnea.

Among the nocturnal symptoms, Dr. Won says that loud snoring is the most common. "Sometimes their bed partner, who gets them coming to the clinic, will report that their spouse is gasping or choking in the middle of the night, or they will report lots of restless movement in their sleep."

“In patients with sleep apnea, oxygen levels in cells drop too low, sending an arousal to wake by gasping for air, which results in bad sleep quality.” – Sigrid C. Veasey, M.D.

ADVANCES IN TREATMENT

The gold standard for treating sleep apnea is the Continuous Positive Airway Pressure (CPAP) machine, says Dr. Won. “Once a person gets diagnosed with sleep apnea, we bring them in for a sleep study wearing the CPAP machine.” Technicians fit patients with a mask that delivers constant air pressure over the nose during sleep, then move to a control room to monitor the process. While the patient is sleeping, technicians tweak the pressure step-by-step until they are able to eliminate all of the sleep apnea. “Whatever pressure that is, that’s the pressure that the patient would get a prescription for and will treat the sleep apnea,” Dr. Won says.

While the CPAP is an effective treatment, researchers at the University of Pennsylvania School of Medicine recently provided the first detailed look at the molecular pathways underlying sleep apnea. Researchers found

that in sleep apnea, poorly folded proteins accumulate in muscle nerve cells in the jaw and face. That buildup can cause the upper airway to collapse or narrow as a result of prolonged exposure to decreased oxygen during sleep. The good news is that a drug called salubrinal can help turn on helpful molecules like antioxidants that degrade these misfolded proteins, thereby preventing a buildup from occurring and causing the upper airway to collapse. Like all drugs, salubrinal carries risks: Proper dosage promotes cell well-being, but too much can stop protein synthesis, which has a highly toxic outcome.

Although sleep apnea can be dangerous and often frustrating, experts note that the success rate for treatment is high, and with the treatment options available today, putting an end to sleep apnea can be achieved in a surprisingly short amount of time. ❖❖

POINTS OF CONTACT:

- For more information about sleep apnea, visit:
 - » The American Sleep Apnea Association Web site at www.sleepapnea.org
 - » In-home sleep apnea testing: www.sleepquest.com