Sleep and Sleep Disorders and Severe Asthma

We were fortunate for this session to be joined by Thomas B. Rice, MD, sleep specialist at the Comprehensive Lung Center, UPMC Presbyterian, along with regular moderators Sally Wenzel, MD, Director of the UPMC Asthma Institute, and Deborah Gillman PhD, Psychologist with the Institute. Participants in this session experienced a range of sleep issues, from obstructive sleep apnea to insomnia. Dr. Rice brought his experience with sleep patients, newer research and interventions in the area of sleep medicine to our understanding of the relationship between sleep and severe asthma.

Sleep Regulation
Dr. Rice described the two factors that control sleep. These are 1) Circadian rhythms or the diurnal cycle of light and dark that leads most people to be awake during the day and asleep at night; and 2) our sleep drive, which over the course of the day builds like a rubber band being pulled taut. Dr. Rice cautioned that, when nighttime sleep is poor, daytime napping can interfere with and weaken one’s sleep drive.

One particular problem that results from being awake at night is that our brain associates nighttime with awake time. This is true for anyone who struggles with insomnia. Imagine, now, for someone who has had difficulty breathing at night: this person may develop a scared association to sleep, with nighttime=times to be fearful or hyper-vigilant. On the flip side, some participants reported feeling exhausted at night because of their illness.

Problems in Severe Asthma and Sleep
Some participants reported their asthma waking them up at night. Unfortunately, beyond getting asthma under control there is little to be done. One caller uses maintenance medications before bedtime. Others find benefit from long-acting beta agonists. Others wind up awake during the night as a result of having to treat their asthma. Once treated, some participants find themselves breathing well—but wide awake.
Obstructive Sleep Apnea and Asthma: Breathing Quality of Life
Patients with asthma have a higher occurrence of sleep apnea. It is not entirely clear why, but may be related to shared risk factors.

Dr. Wenzel recalled research from some years ago suggesting that treating sleep apnea would improve one’s asthma. Dr. Rice described the way CPAP (continuous positive airway pressure) serves as a splint for one’s airway, keeping it open, making broncho-constriction less likely. The goal of treating apnea is to “treat one’s overall breathing quality of life.” Body position is important as well: People derive benefit from sitting up in bed, using wedges or multiple pillows, in order to keep the airway open and also because lying flat can lead to more sinus drainage. Furthermore, lung volume can worsen in the lying-down position.

Dr. Rice discussed as well that some Asthma patients respond poorly to BiPAP (bi-level positive airway pressure, a mode where the CPAP machine blows airs into the lungs). According to Dr. Wenzel, bad areas of the lungs may already take up lots of air and the air pressure can give the sensation of not being able to breathe out. Other callers have found great benefit of BiPAP, even to the point of helping with an exacerbation and preventing intubation. Dr. Rice described how, during an exacerbation when breathing faster, the BiPAP can help to slow down breathing.

One caller cited fatigue even with the benefits of a BiPAP machine. Dr. Rice noted that many patients do have residual sleepiness even after being treated for sleep apnea. In fact, 40% of patients with obstructive sleep apnea have co-occurring sleep disorders (such as insomnia).

“Predsomnia”
Several participants shared the singular experience of sleep difficulties as a result of high doses of prednisone, described by one caller as predsomnia.

Dr. Wenzel raised the role of the timing of prednisone use and the impact on sleep. Beta agonists increase one’s heart rate, making it harder to sleep. However, some research has shown that the optimal timing of prednisone use to minimize sleep interference is 3:00 PM—and not mornings, as one would assume.
Sleep Hygiene
One caller reported longstanding insomnia and a severe sleep apnea. Her strategy to combat insomnia is to stay up as late as possible, tire herself out, plus various relaxation strategies. Dr. Rice noted she was doing many things correctly, by attending to sleep-related behavior as well as adjusting her expectations for her sleep. Often, insomnia generates a good deal of anxiety, and the worries about not sleeping become the focus of one’s sleep problems. Dr. Wenzel noted that the publicized notion of 7-8 straight hours of sleep, while popular, frequently does not match many folks’ experience.

In fact, there is evidence that in times before electricity in homes, when sleep was tied to sunset, bi-phasal sleep—or a pattern of sleep, followed by a period of wakefulness, followed by sleep—was the norm. This may provide some comfort for folks who struggle with middle-of-the-night sleeplessness.

Sleep and Health
Medical conditions including obesity and diabetes are impacted by poor sleep. One participant reported having severe sinus issues, being evaluated for sleep apnea three times, and now using oxygen at night. For her, four hours of sleep per night is great sleep. According to Dr. Rice, there are new treatments, new dental sleep appliances and minor surgical procedures that can improve select sleep disorders. Many patients, however, never see a sleep specialist and so may not be aware of all treatment options. Dr. Wenzel said that in her current practice, she is more likely to refer patients with sleep disorders to a sleep specialist than she used to be, given that the field has become much more specialized.

Sleep and Pain
Participants additionally discussed the impact of pain on sleep. According to Dr. Rice, it is not surprising that the impact of pain is worse at night: this is evident as well in sleep studies. Positional changes at night are one factor; another is the fact that nighttime brings fewer distractions from pain compared with day time.

Sleep and Depression
Sleep difficulties frequently co-occur with depression—whether excessive sleep and fatigue or disrupted sleep and sleeplessness. When SSRI medications are
prescribed, they can be of great benefit because when depression improves so may sleep. According to Dr. Rice, however, some patients with depression experience negative effects of SSRIs, namely the suppression of REM sleep and little improvement in their sleep. Sleep symptoms in cases of depression should always be monitored carefully in consultation with your prescribers.

*The UPMC Asthma Institute Support Group is intended to provide support and information to the group’s participants. The professional guidance available through this group is not intended as a substitute for direct medical or psychological services.*