Editorial

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When sleep is disrupted, the consequences affect not only personal health, but also impact the family and community. Societal costs are very high and reflect increased healthcare use, lower productivity, and higher accident rates. This issue of *Neurotherapeutics* critically reviews new information pertaining to the treatment of sleep disorders. As the field of sleep research has advanced, a broader range of treatments has emerged based on improved understanding of sleep disorder pathophysiology.

Dr. Michael Thorpy [1] reviews current classification of sleep disorders summarizing the anticipated upcoming changes in the *Diagnostic and Statistical Manual of Mental Disorders, fifth edition* and *International Classification of Sleep Disorders, third edition*. Nosology is important because it provides a framework for how to think concerning sleep disorders and their treatment. It also facilitates analysis of a sleep complaint and generation of differential diagnoses.

Dr. Steven Brass et al. [2] addresses new and unconventional treatments for obstructive sleep apnea (OSA). It is noteworthy that continuous pressure airway therapy (CPAP), the most-used conventional treatment for OSA, is not reviewed. CPAP, which applies continuous pressure, is no longer considered a preferred treatment for OSA. Various modalities of positive airway pressure therapies (PAP) have been developed. Originally CPAP was designed to provide a single pressure throughout the entire sleep time of the patient.

The availability of CPAP transformed the life of millions, and led to a tremendous expansion of sleep medicine and awareness of OSA. However, it should not be surprising that the degree of collapsibility of the pharynx can fluctuate during the course of the sleep period, based on variables such as sleep stage, sleeping position, or use of sedating medications. Therefore, a single pressure device, such as conventional CPAP, cannot always be effective. Automated or “smart” PAP devices can alter the pressure delivered as needed throughout the night. It may also be tolerated better. Because the cost difference between CPAP and automatic PAP has markedly decreased, there is presently little justification to use conventional CPAP.

Despite the availability of new modalities of PAP and other treatment options for OSA, it was initially viewed as a surgically treatable condition. Although tracheostomy is no longer routinely considered for most patients with OSA, surgery still remains an effective treatment option. Many patients seek surgical intervention to avoid chronic treatment. Dr. Capasso and colleagues [3] review contemporary approaches for upper airway surgery. Unlike PAP devices, which are mass produced, OSA surgery is a specialized skill with heterogeneous approaches.

One of the most challenging aspects of sleep medicine is the treatment of insomnia. Similar to pain, insomnia is a symptom that can become a syndrome. Inability to obtain refreshing sleep can disrupt daily life, with pressure to sleep leading to chronic insomnia. Along with other sleep disorders and other chronic medical conditions further complicating diagnosis and medical care, chronic insomnia is often comorbid. Two articles address the treatment of insomnia. Patients with insomnia often express frustration that they have “tried everything.” Yet, as the articles by Drs. Roehrs et al. [4] and Siebern et al. [5] illustrate, patients can obtain both immediate relief and long-term improvement of insomnia with appropriate pharmacotherapy and cognitive behavioral techniques.

The relationship between increased knowledge of pathophysiology and improved treatment options is detailed in Dr.

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Mignot's [6] practical review of narcolepsy and hypersomnia syndromes. Many options are now available, including the use of stimulants, sedative agents, and antidepressants. As the evidence solidifies that narcolepsy is an autoimmune disease, the treatments are evolving away from symptomatic relief alone. This review also discusses the often overlooked Klein Levin syndrome or recurrent hypersomnia.

One of the most intriguing problems for sleep medicine is the parasomnias. These represent a broad group of conditions characterized by dissociation among the awake, dreaming, or sleeping brain states. As awareness of parasomnias increases, there are not only clinical concerns, but also increasingly forensic aspects of parasomnias that need consideration. Dr. Howell's [7] timely review emphasizes previously overlooked sleep-related eating disorders, which have attracted media attention and require more codified treatment.

Dr. Buchfuhrer [8] shares his considerable clinical expertise in the treatment of restless leg syndrome (RLS). RLS has long been considered an idiopathic condition, but progress in genetics and pathophysiology now suggest common mechanisms involving developmental genes and iron metabolism. Several medications have been introduced for RLS, and treatment options are expanding. However, some approaches, such as use of dopamine agonists that are initially effective may later paradoxically worsen the condition, a term called "augmentation." Other drugs, such as opioids, are effective but raise other clinical concerns.

Finally, Dr. Sullivan [9] provides a thorough review of the treatment of sleep disorders in children. Clinicians often overlook the fact that many sleep disorders occur with high frequency in children and are familial. For example, if a child has sleep apnea, it is very likely they will have other family members with this disorder. This frequency in families may

also be found with sleepwalking and RLS. However, clinicians must recognize that clinical presentations may be different in children.

Despite considerable recent advances in the treatment of sleep disorders, there is a pressing need for more basic and outcomes research in this field. Greater investment in sleep medicine research and its clinical translation can have great benefits for improving public health.

Required Author Forms Disclosure forms provided by the authors are available with the online version of this article.

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