Preface

Sleep in Older Adults: Challenges and Opportunities

Cathy A. Alessi, MD

Jennifer L. Martin, PhD

Editors

Sleep problems are common among older adults, can significantly impact health and quality of life, and can present unique challenges for diagnosis and management. This series of articles provides a state-of-the-art, evidence-based review of key topics in the assessment and management of sleep problems in older adults. Written by leading experts in various fields, from around the United States and internationally, these articles address changes in sleep that occur with healthy aging and illness, in addition to important and unique issues clinicians must consider when caring for the older adult with disturbed sleep.

In the first article, Li, Vitiello, and Gooneratne provide a careful review of clinically relevant age-related changes in sleep and circadian rhythms, particularly advanced sleep timing, decreased slow-wave sleep, shortened nighttime sleep duration, increased nighttime awakenings and time spent awake at night, and increased frequency of daytime napping. Interestingly, most of these and other age-related changes in sleep occur by middle age, with sleep remaining relatively stable after 60 years of age in healthy older adults. Aging is also associated with less robust circadian rhythms and sleep homeostasis, which contribute to sleep changes with aging. In addition, age-related changes in neuroendocrine functions contribute to or correlate with alterations of

sleep quality and architecture in normal aging. Finally, the authors describe the multifactorial nature of sleep disturbance in older adults, including common medical comorbidities and psychiatric illnesses, primary sleep disorders, and changes in social engagement, lifestyle, and environment that can play a role in sleep.

Brewster, Riegel, and Gehrman provide an overview of insomnia disorder in older adults, highlighting different types of insomnia complaints (ie, difficulty falling asleep at the start of the sleep period, waking up during the night and having difficulty falling back asleep, and waking up early and being unable to get back to sleep), and how the types of insomnia complaints in older people differ from their younger counterparts. Given the medical and psychiatric complexity of many older adults, they also highlight the importance of a thorough medical history in evaluating older people with difficulties sleeping. Finally, they discuss treatment of insomnia in older patients, highlighting the benefits achieved with cognitive behavioral therapy for insomnia, a multicomponent treatment including stimulus control, sleep restriction, sleep hygiene, and cognitive therapy, as the recommended first-line therapy for treatment of insomnia in older adults. They also discuss the potential risks in older adults (eg, falls) associated with many pharmacologic agents used to manage insomnia.

Sleep apnea or sleep-disordered breathing (SDB) is another common sleep disorder in older people. In their article, Chowdhuri, Patel, and Badr review the spectrum of age-related considerations in SDB, from pathophysiology to treatment. Older patients have higher rates of SDB, and in particular, higher rates of central apneas. In addition, the risks for cardiovascular, metabolic, and neurocognitive sequelae when SDB is left untreated are particularly important in the older population. While the treatment of choice for SDB is positive airway pressure therapy, and available studies show that older patients do benefit from treatment, the authors highlight that research in this area is needed. They also note that studies of other therapies for SDB have not been conducted with older patients. Future research on the challenges and benefits of treating SDB in older patients is still needed.

Kim and Duffy discuss how the circadian timing system changes with advancing age, including the natural shift of internal circadian rhythms to an earlier time, and a decreased ability of older adults to shift the timing of their circadian clock. They bring this discussion into clinical application, highlighting the reasons older adults suffer from higher rates of circadian rhythm sleep disorders, such as advanced sleep-wake phase disorder and irregular sleep-wake rhythm disorder, leading to sleep-related complaints and reduced quality of life. They also discuss why older adults are more prone to jet lag disorder and shift work disorder because of alterations in the circadian timing system.

In the next article, Iranzo reviews rapid eye movement (REM) sleep behavior disorder and other parasomnias in the older adult, which are important and interesting problems in this population. First, disorders of arousal from non-REM (NREM) sleep, such as sleepwalking and sleep terrors, are discussed, since these conditions may persist in the older adult. In addition, medications (such as zolpidem and other agents) may induce sleepwalking and sleep-related eating, including among older people. The article provides a particularly comprehensive and state-of-the-art review of REM sleep behavior disorder, which is particularly important in older adults. Individuals with idiopathic REM sleep behavior disorder represent a prodromal stage of Parkinson disease and related synucleinopathies. In addition, a careful description is provided for anti-IgLON5 disease, which is an interesting and novel condition characterized by abnormal sleep architecture, abnormal behaviors in NREM sleep, and

REM sleep behavior disorder. This condition is characterized by antibodies against the protein IgLON5, the presence of HLA-DQB1*05:01, and tau deposits involving the brainstem and the hypothalamus. Finally, restless legs syndrome and periodic limb movements in sleep are reviewed, particularly in terms of unique aspects of these conditions in older adults.

The next article, by Malhotra, provides a comprehensive and enlightening review of neurodegenerative disorders and sleep. Sleep problems are commonly found in older adults with neurodegenerative disorders, such as Parkinson's disease and Alzheimer's disease, and the clinician managing sleep problems in older adults needs a thorough understanding of these conditions. The sleep disorders identified may be due to the primary symptoms of the neurodegenerative disease itself or may result from damage to sleep-controlling centers in the brain. Common sleep disorders found in this population include insomnia, hypersomnia, sleep apnea, restless legs syndrome, circadian rhythm disorders, and REM sleep behavior disorder. As mentioned above, REM sleep behavior disorder can present years before any other neurologic symptoms or signs are present, serving as a precursor to Parkinson's disease or other synucleinopathies. Of keen interest is the growing evidence that poor sleep can lead to acceleration in the progression of neurodegenerative disorders and may play a role in the pathogenesis of these potentially devastating conditions.

Sleep problems in older adults commonly occur in the setting of complex comorbidity, and, in the next article, Onen and Onen provide an informative review of the evidence for a relationship between medical conditions and sleep in the older adult. Since older adults with sleep disturbances and chronic medical conditions may have tremendous clinical heterogeneity and complexity, the management of sleep disturbances in older age can be both challenging and fascinating. Pain and sleep disturbance is an important example, since the pain itself, the underlying disease process(es) causing pain, and medication to treat pain, can all disturb sleep. The relationship is also bidirectional, since sleep disturbances may adversely affect the natural course of chronic painful disease in older adults. With cancer, in particular, sleep disturbance may negatively affect the patient's experience by increasing fatigue and discomfort, and reducing emotional well-being. Increased risk of falls in older adults

is another area of importance to the clinician interested in sleep. Falls are common in older adults with insomnia and sleep apnea, and sedative hypnotics increase the risk of falls. The relationship between sleep apnea and heart disease, as it relates to older adults, is also addressed. In particular, heart failure may contribute to sleep apnea through a variety of mechanisms, and sleep apnea may impair cardiac function chronically by increasing sympathetic activity and oxidative stress leading to increased blood pressure, nocturnal arrhythmias, and stroke.

Comorbid psychiatric illness has a significant impact on sleep in older adults. Nadorff, Drapeau, and Pigeon explore the association between sleep disorders and psychopathology among older adults and note similarities in the relationship between poor sleep and anxiety, depression, dementia, and suicidal behavior. They discuss literature related to high rates of comorbid psychiatric disorders in patients with sleep disorders and vice versa. They also discuss important findings related to sleep disruption as a suicide risk factor among older adults, even beyond the effects of psychopathology. The authors note a need for research examining the potential benefits of treating sleep disorders on psychiatric symptoms specifically in older people.

In an excellent review of the literature on sleep and cognition in older adults, Dzierzewski, Dautovich, and Ravyts discuss both normative changes in cognition and cognitive decline associated with pathology. They report that negative changes in sleep are associated with worse cognitive functioning, and that is true across subgroups of older patients, including those with and without sleep disorders. They focus on cognitive correlates of both insomnia and SDB, noting that evidence is mixed regarding the benefits of treatment. Some studies have shown cognitive benefits associated with treatment of insomnia and SDB, while other studies have not. They conclude by noting that understanding the mechanisms through which sleep can improve cognitive functioning in older people may facilitate development of promising new interventions.

No review of sleep problems in older adults would be complete without addressing the topic of sleep and nocturia, which is provided in a thoughtful and practical format in the article by Vaughan and Bliwise. Older people frequently experience nocturia and sleep disturbance concurrently, and problems with sleep resulting

from nocturia are a major factor associated with the degree of bother (or discomfort) that older people attribute to nocturia. Nocturia among older adults is often the result of multiple chronic conditions or predisposing factors, so a multi-component treatment strategy is usually warranted. Initial treatment includes lifestyle modification and behavioral treatment with consideration of pelvic floor muscle exercise-based therapy. Behavioral treatment for nocturia appears to provide a reduction in nocturia that is similar to the most frequently used drug therapies for nocturia. Medication-based treatments for nocturia available include alpha-blockers and bladder relaxants; the role of other agents, such as antidiuretic therapy, remains uncertain. If initial treatment strategies for nocturia do not provide significant improvement, a more formal sleep evaluation should be considered in the older adult with nocturia, since certain sleep disorders, such as sleep apnea and restless legs syndrome, may predispose and/or contribute to nocturia.

Many older adults will spend some portion of their later years in an institutional long-term care (LTC) facility, and while many of the same factors that disrupt sleep in community settings also disrupt sleep in LTC, there are additional issues to consider. Ye and Richards note that poor sleep increases risk for LTC placement, and sleep disturbance is extremely common among LTC residents. They discuss challenges in the evaluation and diagnosis of sleep disorders, such as insomnia, SDB, and restless legs syndrome, and suggest that management of sleep disturbance in LTC residents is an important aspect of offering high-quality care for this already compromised population. In addition, they provide recommendations for how to improve sleep quality among LTC residents using nonpharmacologic strategies.

Finally, Stewart and Arora provide an evidence-based review of sleep in the hospitalized older adult. Older adults make up the majority of hospitalized patients, and hospitalization is typically a period of acute sleep deprivation for older adults due to environmental, medical, and patient factors. Although hospitalized patients are likely in need of adequate rest to aid in their recovery during acute illness, these patients face unique risks due to the acute sleep loss of hospitalization. Evidence suggests that sleep loss in the hospital is associated with worse health outcomes, including cardiometabolic derangements and increased risk of delirium. Because older patients are at risk of

polypharmacy and medication side effects, non-pharmacologic interventions are recommended as the first-line choice to improve sleep in hospitalized older adults.

We greatly appreciate the hard work and dedication of these authors in providing practical, evidence-based reviews of key topics related to sleep in older adults. As described in these pages, sleep disturbance can significantly impact the health and well-being of older adults, and complex medical and psychiatric comorbidity often plays a key role in understanding and managing sleep problems in this population. To quote Ralph Waldo Emerson, “Health is the first muse, and sleep is the condition to produce it.” We hope this work will provide useful and timely guidance for clinicians and will spark interest in researchers, educators, and others to address the important and unique issues that must be

considered when caring for the older adult with disturbed sleep.

Cathy A. Alessi, MD
Geriatric Research, Education and Clinical Center
VA Greater Los Angeles Healthcare System
David Geffen School of Medicine
at the University of California, Los Angeles
Los Angeles, CA 91343, USA

Jennifer L. Martin, PhD
Geriatric Research, Education and Clinical Center
VA Greater Los Angeles Healthcare System
David Geffen School of Medicine
at the University of California, Los Angeles
Los Angeles, CA 91343, USA

E-mail addresses:

cathy.alessi@va.gov (C.A. Alessi)
jennifer.martin@va.gov (J.L. Martin)