Sleep Apnea and Sleep-Disordered Breathing

Jiahui Lin, MD[a], Maria Suurna, MD[b,*]

KEYWORDS

• Obstructive sleep apnea • Snoring • Elderly • Geriatric • Sleep-disordered breathing • CPAP

KEY POINTS

- Changes in sleep rhythm, duration, and architecture are normal aspects of aging; it is important to distinguish these changes from symptoms of an underlying sleep disorder.
- The prevalence of undiagnosed sleep apnea and sleep-disordered breathing is high in the elderly.
- These disorders may have a significant impact on quality of life as well as increase associated mortality and morbidity, if left untreated.
- Initial treatment of obstructive sleep apnea is positive airway pressure, which has been shown to improve quality of life as well as morbidity and mortality.

INTRODUCTION

Sleep apnea and sleep-disordered breathing are prevalent disorders in the adult population and are often associated with a wide variety of comorbid conditions. Most common disorders that fall under the category of sleep-disordered breathing include obstructive sleep apnea (OSA), central sleep apnea, and sleep-related hypoventilation. Degree of airway narrowing can range from snoring to complete collapse of the airway with cessation of airflow. As the rate of obesity, particularly in Western societies, has been steadily increasing, associated higher prevalence of sleep-disordered breathing has been also observed. In-laboratory polysomnography is considered the gold standard for diagnosis of clinically suspected sleep-related breathing disorders in adults. A home sleep test is an alternative diagnostic method for patients with no major comorbid conditions, although it carries some limitations. Diagnosis of sleep apnea is established in the presence of respiratory events resulting

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[a] Department of Otolaryngology–Head and Neck Surgery, New York-Presbyterian Hospital, Columbia and Weill Cornell, 180 Fort Washington Avenue, New York, NY 10032, USA; [b] Department of Otolaryngology–Head and Neck Surgery, Weill Cornell Medicine, New York Presbyterian Hospital, 1305 York Avenue, New York, NY 10021, USA
* Corresponding author.
E-mail address: mas9390@med.cornell.edu

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in an apnea-hypopnea index (AHI) of at least 5 events per hour in symptomatic patients. This article focuses on the impact of these disorders and management strategies in the older adult patients.

EPIDEMIOLOGY OF SLEEP DISORDERS IN THE ELDERLY

A survey from the National Sleep Foundation showed that among adults between 55 and 84 years of age, 52% reported a sleep problem. The described sleep-associated problems included difficulty falling asleep, frequent awakenings, early awakening, awakening unrefreshed, daytime sleepiness, pauses in breathing, snoring, unpleasant feeling in the legs, or less than 6 hours of nightly sleep.[1] Population-based studies have shown that symptomatic OSA affects approximately 3% to 7% of adult men and 2% to 5% of adult women.[2] Other studies have shown that the prevalence of OSA, both symptomatic and asymptomatic, is 20% and 56% in women, and 28% and 70% in men between the ages of 65 and 99 years defined by AHI and respiratory disturbance index (RDI) of at least 10 events per hour, respectively.[3] Other population-based studies showed that in adults older than 65, the prevalence of OSA is as high as 90% in men and 78% in women.[4,5] However, most age-related increases in the prevalence of OSA occur before the age of 65 years.[6] Indeed, the Sleep Heart Health Study found that the increase in prevalence of OSA appeared to plateau after the age of 65 years.[7] Nevertheless, these studies highlight a significant proportion of undiagnosed and occult sleep-disordered breathing in the aging population.

PATHOPHYSIOLOGY

Collapse of the pharyngeal and retrolingual airway is the primary cause of obstruction in OSA. Many factors may contribute to this collapse. The genioglossus is considered to be most important muscle in maintaining airway patency. Studies have shown that older adults have a decreased genioglossus response and lower neuromuscular tone, which may contribute to their increased rate of OSA.[8] Menopause is another risk factor for sleep-disordered breathing, likely related to estrogen depletion.[6,9] Interestingly, survey data show that changes in body mass index (BMI) are only weakly associated with changes in AHI, and the association between AHI and obesity is even weaker in older adults.[7,10] Furthermore, snoring and symptoms of daytime sleepiness are reported less frequently among older adults despite the increase in OSA prevalence.[6] Explanations for these findings could be the fact that bed partners who typically report on snoring are no longer alive or, because of age-related factors, do not hear the snoring. Older adults also are more likely to have components of central apnea. Regardless of the cause, sleep-disordered breathing is a more complex entity in older adults and should be recognized through detailed history taking and physical examination.

CHANGING SLEEP PATTERNS IN THE ELDERLY

Sleep patterns change as adults age (**Box 1**).[11] Changes such as sleep rhythm, duration, and architecture in older adults have been well documented. A survey from the National Sleep Foundation showed that 33% of older adults reported fair or poor quality of sleep, and 13% reported having a diagnosis of a sleep disorder.[1] Oftentimes, older adults have various comorbid conditions that interfere with sleep, including depression, prostate hypertrophy, gastroesophageal reflux, arthritis, and pulmonary disorders (**Box 2**). Many medications can also cause nocturia, such as diuretics, and are taken commonly in this patient population. On average, total sleep time decreases by 10 minutes per decade of life.[12,13] Sleep onset latency also increases