Daytime Sleepiness in the Elderly: A Risk Factor for Cardiovascular Disease?


Study Overview

Objective. To examine sleep disturbance symptoms, including snoring and daytime sleepiness, as potential risk factors or precipitants of cardiovascular disease (CVD).

Design. Observational cohort study that was part of the Cardiovascular Health Study.

Setting and participants. 5888 persons aged 65 years and older in 4 U.S. communities were recruited in 1989, with an additional minority cohort recruited in 1993. Subjects were followed for an average of 4.85 years.

Main outcome measures. Total mortality and CVD morbidity and mortality, including total CVD morbidity and mortality, incident myocardial infarction (MI), and congestive heart failure (CHF). An interview-administered questionnaire was used to track participants’ health and sleep habits.

Main results. Daytime sleepiness was the only sleep symptom significantly associated with mortality in both men and women. The unadjusted hazard ratio (HR) was 2.12 (95% confidence interval [CI], 1.66 to 2.72) in women and 1.40 (95% CI, 1.12 to 1.73) in men. Men who reported difficulty falling asleep also had an increased mortality rate (HR, 1.43; 95% CI, 1.14 to 1.80), but this finding was not seen in women. When attenuated with adjustment for age, risks remained significant for daytime sleepiness in women (HR, 1.82; 95% CI, 1.42 to 2.34) and for difficulty falling asleep in men (HR, 1.29; 95% CI, 1.03 to 1.63). Frequent awakenings, early morning awakenings, and snoring were not associated with a significantly increased risk of mortality in men or women.

Incident CVD rates were higher in both men and women reporting daytime sleepiness, with aged-adjusted HRs of 1.35 (95% CI, 1.03 to 1.76) in men and 1.66 (95% CI, 1.28 to 2.16) in women. The risk of CVD events associated with daytime sleepiness was attenuated but remained significant in women after adjustment for age. Increased rates of incident CVD were not found in participants with any other sleep disturbance, including snoring.

Women with daytime sleepiness exhibited higher incident MI rates, but these rates were not significantly higher in men. Incident CHF rates were increased in both men (age-adjusted HR, 1.49; 95% CI, 1.12 to 1.98) and women (age-adjusted HR, 2.21; 95% CI, 1.64 to 2.98) with daytime sleepiness. Women reporting both daytime sleepiness and frequent awakening had an HR of 2.34 (95% CI, 1.66 to 3.29) for incident CHF compared with those experiencing daytime sleepiness but not frequent awakening. This interaction was not found in men.

Conclusion

A report of daytime sleepiness identifies older adults at increased risk for total and cardiovascular mortality and is an independent risk factor in women.

Commentary

Increasingly, excessive daytime sleepiness is being recognized as a significant public health problem. This condition can be caused by various factors, including sleep loss or inadequate sleep time, specific sleep disorders (eg, sleep-disordered breathing, restless leg syndrome), unrelated medical conditions (CVD, psychiatric illnesses), and medications (antihypertensives, sedative-hypnotics) [1]. Further, drowsiness during the day can lead to neurocognitive deficits, increased risk of accidents, impaired general health status, and limitations in activities of daily living [1]. Newman et al suggest an important independent association between daytime sleepiness and incident CVD events and total mortality, particularly in women. However, the mechanisms through which daytime sleepiness independently relates to CVD remain unclear. Short of identifying these mechanisms, 2 other possible explanations can be explored further: first, daytime sleepiness is simply a marker for underlying sleep disorders that are independently associated with CVD; second, daytime sleepiness is a manifestation of CVD’s interference with normal sleep patterns.
Applications for Clinical Practice

This study reinforces the relatively recent notion that somnolence among the elderly may not be a benign consequence of aging. Health care professionals should be made aware of the potential dangers associated with daytime sleepiness and should recognize it as a possible sign of more serious underlying conditions. Simply asking about excessive daytime drowsiness can identify patients who may be at increased risk for CVD mortality and morbidity. Further research should be done to confirm these findings and to ensure that they are not simply the result of unmeasured clinical confounders.

References