

## Poor sleep associated with cognitive decline in elderly women

July 16 2007

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Women who experienced cognitive decline over a 13 to 15 year period after age 65 were more likely to sleep poorly than women whose cognition did not decline, according to a study led by researchers at the San Francisco VA Medical Center (SFVAMC).

The women's cognitive decline was associated with interrupted or fitful sleep. Total sleep time per night made no difference, says lead author Kristine Yaffe, MD, chief of geriatric psychiatry at SFVAMC and professor of psychiatry, neurology, epidemiology, and biostatistics at the University of California, San Francisco (UCSF).

“This indicates that it's not how long you sleep, but how well you sleep,” she says.

The study appears in the July 17, 2007 issue of *Neurology*.

Yaffe speculates that there are three possible explanations for the association between cognitive decline and disturbed sleep. She says the first and most likely reason is that whatever neurodegenerative condition is starting to cause cognitive decline, such as Alzheimer's disease, is also affecting areas of the brain that govern sleep.

“Sleep is very complex,” notes Yaffe. “It involves a coordinated series of neurologic functions that we don't entirely understand. It's not unlikely that early neurodegenerative disease could start having an effect on sleep centers as well.”

Another possibility is that someone who is becoming cognitively impaired is sleeping poorly “because they’re aware of their condition and they’re worried about it.”

Finally, Yaffe says that other factors entirely, such as brain inflammation or genetic changes, might cause both cognitive decline and sleep disturbance at the same time.

The researchers studied 2,474 women who were part of a larger ongoing prospective study of risk factors for osteoporosis that began in 1986. The mean age of the women was 68.9 years at the beginning of the study. Their cognitive health was measured at regular intervals over the course of the study using two standard cognitive tests: the Mini-Mental State Examination and the Trail Making Test, Part B, known as Trails B.

After 13 to 15 years in the study, the women were fitted with an actigraph, a small device worn on the wrist that measures movement and is known from previous studies to be highly accurate in differentiating sleep from wakefulness. The women wore the device for at least three consecutive 24-hour periods.

Women who performed progressively worse on both cognitive tests over time were significantly more likely to have difficulty falling asleep and staying asleep than women whose performance did not decline. Women who performed progressively worse on the Trails B test also napped significantly more during the day.

The association between cognitive decline and poor sleep remained even after the researchers adjusted for a host of other demographic factors such as age, education, depression, exercise, and health status.

“It’s been known for some time that people with cognitive problems often have sleep problems, but those studies have mostly been done on

severely demented people in nursing homes,” observes Yaffe. “Ours was the first study to look at the relationship between sleep and cognition in healthy women dwelling in the community who did not have dementia to begin with.”

Yaffe offers several cautions concerning the results of the study. First, men and African-American women were excluded from the original osteoporosis study because both of those groups have low incidence of osteoporotic fractures. Additionally, sleep patterns were measured only once, “so it’s more of a snapshot.”

However, Yaffe says that the research group has received a grant from the National Institutes of Health to continue tracking sleep patterns and cognitive health over time in the same study cohort. “Hopefully, we’ll be able to tell if cognitive changes lead to sleep disturbances, or if the reverse is true, or if they have a common independent cause.”

Source: University of California - San Francisco

Citation: Poor sleep associated with cognitive decline in elderly women (2007, July 16) retrieved 23 April 2024 from

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