

Use of bright lighting may improve dementia symptoms for elderly persons

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The use of daytime bright lighting to improve the circadian rhythm of elderly persons was associated with modest improvement in symptoms of dementia, and the addition of the use of melatonin resulted in improved sleep, according to a study in the June 11 issue of JAMA.

"In elderly patients with dementia, cognitive decline is frequently accompanied by disturbances of mood, behavior, sleep, and activities of daily living, which increase caregiver burden and the risk of institutionalization," the author write. These symptoms have been associated with disturbances of the circadian rhythm (the regular recurrence, in cycles of about 24 hours, of biological processes or activities). "The circadian timing system is highly sensitive to environmental light and the hormone melatonin and may not function optimally in the absence of their synchronizing effects. In elderly patients with dementia, synchronization may be [diminished] if light exposure and melatonin production are reduced."

Rixt F. Riemersma-van der Lek, M.D., of the Royal Netherlands Academy of Arts and Sciences, Amsterdam, and colleagues conducted a trial at 12 elderly group care facilities in the Netherlands that evaluated the effects of up to 3.5 years of daily supplementation of bright light and/or melatonin on a number of health outcomes, including symptoms of dementia and sleep disturbances. The study included 189 facility residents, average age 85.8 years; 90 percent were female and 87 percent had dementia.

Six of the facilities had bright lighting installed in ceiling-mounted fixtures. Lights were on daily between approximately 9 a.m. to 6 p.m. Participants were randomized to receive evening melatonin (2.5 mg) or placebo and participated an average of 15 months (maximum period of 3.5 years).

The researchers found that bright light lessened cognitive deterioration by a relative 5 percent, reduced depressive symptoms by a relative 19 percent and diminished the gradual increase in functional limitations by a relative 53 percent.

Melatonin reduced the time to fall asleep by a relative 19 percent and increased total sleep duration by 6 percent, but adversely affected caregiver ratings of withdrawn behavior and mood expressions. The addition of bright light improved the adverse effect on mood. In combination with bright light, melatonin reduced aggressive behavior by a relative 9 percent.

"In conclusion, the simple measure of increasing the illumination level in group care facilities [improved] symptoms of disturbed cognition, mood, behavior, functional abilities, and sleep. Melatonin improved sleep, but its long-term use by elderly individuals can only be recommended in combination with light to suppress adverse effects on mood. The long-term application of whole-day bright light did not have adverse effects, on the contrary, and could be considered for use in care facilities for elderly individuals with dementia," the authors write.

Source: JAMA and Archives Journals

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