Exposure to Light Could Help Alzheimer's Patients Sleep Better

Individuals with Alzheimer’s disease and related dementias (ADRD) exhibit irregular sleep schedule and night wandering, which is a primary reason they are placed in more controlled environments such as nursing homes. In a recent study, LRC researchers were the first to collect circadian light/dark and activity/rest patterns in individuals with ADRD and compare them to healthy older adults.

Methods

Sixteen healthy older adults and 21 adults with ADRD wore a Dimesimeter on their wrists for one week. The Dimesimeter is a small, calibrated light meter developed by the LRC that continuously records light and activity levels. From the resulting data, the researchers calculated two metrics for each subject: relative activity (RA) and phasor magnitude. RA is a “contrast” calculation based upon the most and least active periods in a day; a higher value suggests less circadian disruption. Phasor magnitude measures the resonance between the 24-hour light-dark pattern and the 24-hour activity-rest pattern. The higher the resonance, measured by the phasor magnitude, the greater the circadian entrainment.

Results

Results of the quantitative study showed that:
• Adults with ADRD studied in winter were exposed to less light than healthy adults in winter and ADRD adults in summer.
• During winter, those with ADRD exhibited more circadian disruption than healthy adults as reflected by their significantly shorter phasor magnitudes and lower RA values.
• Adults with ADRD had significantly shorter phasor magnitudes in the winter than in summer.
• Adults with ADRD were less active during waking hours than healthy adults.

Publication


Sponsor

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Conclusion

Looking forward, the Dimesimeter could one day allow physicians to predict the optimum timing of the light therapy necessary to resynchronize the circadian phase with the solar day.