

Green tea compounds beat OSA-related brain deficits

Chemicals found in green tea may be able to stave off the cognitive deficits that occur with obstructive sleep apnea (OSA), according to a new study published in the second issue for May of the American Thoracic Society's *American Journal of Respiratory and Critical Care Medicine*.

Researchers examined the effects green tea polyphenols (GTP), administered through drinking water, on rats who were intermittently deprived of oxygen during 12-hour “night” cycles, mimicking the intermittent hypoxia (IH) that humans with OSA experience.

People with OSA have been reported to have increased markers of oxidative stress and exhibit architectural changes in their brain tissue in areas involved in learning and memory. Chronic IH in rats produce similar neurological deficit patterns.

“OSA has been increasingly recognized as a serious and frequent health condition with potential long-term morbidities that include learning and psychological disabilities [...],” wrote David Gozal, M.D., professor and director of Kosair Children’s Hospital Research Institute at the University of Louisville, lead author of the article. “A growing body of evidence suggests that the adverse neurobehavioral consequences imposed by IH stem, at least in part, from oxidative stress and inflammatory signaling cascades.”

GTPs are known to possess anti-oxidant properties, acting as a free radical scavengers, and research has shown that the compounds may reduce the risk of a variety of different diseases.

“Recent studies have demonstrated the neuroprotective activity of GTP in animal models of neurodegenerative conditions such as Parkinson’s and Alzheimer’s disease,” wrote Dr. Gozal.

In this study, the researchers divided 106 male rats into two groups that underwent intermittent oxygen depletion during the 12-hour “night” cycle for 14 days. One group received drinking water treated with GTP; the other received plain drinking water.

They were then tested for markers of inflammation and oxidative stress, as well as for performance in spatial learning and memory tasks—namely a water “maze” in which the rat had to memorize the location of a hidden platform.

The IH-rats that received the green tea-treated water performed significantly better in a water maze than the rats that drank plain water. “GTP-treated rats exposed to IH displayed significantly greater spatial bias for the previous hidden platform position, indicating that GTPs are capable of attenuating IH-induced spatial learning deficits,” wrote Dr. Gozal, adding that GTPs “may represent a potential interventional strategy for patients” with sleep-disordered breathing.

Source: American Thoracic Society

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