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DOES VAGAL NERVE STIMULATION IMPROVE MEMORY AND MOOD?

BENEFITS MAY EXTEND BEYOND SEIZURE REDUCTION

Los Angeles—Soon after the Food and Drug Administration approved vagus nerve stimulation (VNS) for intractable seizures in 1997, there appeared anecdotal reports of patients whose cognitive functioning improved postoperatively. A recent

study of 10 patients found that mood and self-reported memory improved in the months following implantation of the VNS device. Objective memory scores, however, revealed only a slight improvement, researchers said at the 54th Annual Meeting of the American Epilepsy Society.

To study the effects of VNS on mood and memory, neuropsychologic assessments were taken before and after implanting the VNS device in 10 patients with intractable seizures. The mean follow-up period was 18 weeks. Five patients decreased their seizure frequency by more than 50%, three patients did not show any change, and the remaining two patients had a less than 50% reduction in seizure frequency.

SUBJECTIVE IMPROVEMENTS?

In addition to improvements in mood, patients also reported significant improvements in their memory following VNS. However, only mild, nonsignificant improvements were found with regard to the total number of words recalled on a verbal learning test and discrimination on a recognition memory test.

“As the patients’ moods improved, this may have also improved their self-ratings; they felt their memory got better but it may be related to their mood improvement,” observed

Cynthia L. Harden, MD, Associate Professor of Neurology and Neuroscience at the Comprehensive Epilepsy Center of New York Hospital–Cornell Medical Center.

BROADER IMPLICATIONS

The study results are "more intriguing in [their] implications for mood than for memory," Dr. Harden said. "Since we see that depressed VNS patients report mood lifting, then perhaps we are looking at a significant way to treat depressed individuals."

The putative antidepressant effects of VNS may result from its stimulatory effects on the noradrenergic and serotonergic systems, the researchers postulated. Interestingly, a previous study found no difference in anxiety in patients undergoing VNS despite a change in mood. Whether or not this is a differential effect of the stimulation device is up for study.

"We need to study many more patients over longer periods of time," Dr. Harden said. The researchers are continuing to recruit more patients in their study. "Variability in the patients' clinical characteristics may have prevented our ability to identify statistically significant changes on objective memory testing," she said. Other research groups, she noted, are currently examining different stimulation parameters and cognitive outcome

variables.

NR

—Dan Rosett

Suggested Reading

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