Many People Regain Cognitive Function After Radiation for Brain Metastasis

Cognitive loss was fully reversed in about 40% of patients who received radiation after cancer spread to the brain.

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More than 40% of people who underwent radiation therapy for cancer that had spread to their brain completely recovered lost cognitive function within a year, and about 75% regained some function, according to study results presented at the American Society for Radiation Oncology (ASTRO) Annual Meeting.

“No longer should we be viewing cognitive dysfunction as a permanent endpoint for patients,” lead researcher Hua-Ren Ryan Cherng, MD, of the University of Maryland Greenebaum Comprehensive Cancer Center, said in an ASTRO news release. “Our research finds that the cognitive side effects of radiation treatment for people with brain metastases appear to be fully reversible, and patients appear to be able to sustain that recovery over the long-term.”

Around a third of all people with cancer are diagnosed with brain metastasis from other parts of the body at some point in their disease. Standard treatment for brain metastasis typically includes either whole-brain radiation or more focused radiation techniques that target the tumor site. While brain radiation helps prevent the further spread of cancer, it can lead to cognitive side effects, such as “brain fog” and difficulty with thinking, learning and memory. More focused methods are associated with less cognitive impairment.

Cherng’s team pooled retrospective data from 288 patients with brain metastasis who participated three randomized Phase III clinical trials comparing traditional whole-brain radiation against hippocampal avoidance (a method that spares the hippocampus, a brain structure that plays a key role in learning and memory) or more focused stereotactic radiosurgery.

The primary endpoint for all three trials was cognitive outcomes as assessed with a battery of cognitive tests administered before treatment and again at six and 12 months after the onset of cognitive function loss. Cognitive recovery was defined no longer having a significant decrease from baseline cognition scores on any test.

At six months following the first signs of cognitive decline, 38% of all patients experienced full cognitive recovery, rising to 42% at one year. What’s more, 73% demonstrated improvement on at

least one cognitive tests at six months, rising to 76% at one year. Among the 65 patients who received ongoing cognitive testing for two years, two thirds experienced sustained cognitive recovery. People who received stereotactic radiosurgery and, to a lesser extent, radiation with hippocampal avoidance, were more likely to achieve full cognitive recovery than those who underwent traditional whole-brain radiation.

“Our data suggest these side effects are not necessarily permanent but potentially reversible,” said Cherng. “We were able to define this novel concept of cognitive recovery, and we saw that a sizeable portion of patients, after experiencing cognitive side effects, actually got better. And not just better, but fully recovered, showing no evidence of any lingering decline according to their cognitive testing.”

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