Stem Cell Treatment May Restore Cognitive Function in Patients with Brain Cancer

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Cranial radiotherapy is known to lead to cognitive dysfunction.
Stem cells conformed to ethical guidelines.

PHILADELPHIA - Stem cell therapy may restore cognition in patients with brain cancer who experience functional learning and memory loss often associated with radiation treatment, according to a laboratory study published in *Cancer Research*, a journal of the American Association for Cancer Research.

Charles Limoli, Ph.D., a professor in the department of radiation oncology at the University of California, Irvine, said radiation therapy is the standard of care for most brain cancers, but the side effects can be devastating.

"In almost every instance, people experience severe cognitive impairment that is progressive, debilitating and adversely impacts quality of life," he said. "Pediatric cancer patients can experience a drop of up to three IQ points per year."

In the current study, Limoli and colleagues subjected rats to cranial irradiation and followed up two days later with human neural stem cell transplants. A significant proportion of these cells survived and turned into brain cells found at one- and four-month evaluations. Cognitive function significantly improved compared with control rats.

Limoli said the findings of this study were significant, and may help pave the way for a human safety trial to be conducted within a few years if appropriate funding can be secured. Neural stem cells like those used in this study do not present the same ethical questions as embryonic stem cells.

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