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Latest vaccine study supports immune targeting of brain tumors

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An experimental vaccine developed by researchers at Cedars-Sinai Medical Center's Maxine Dunitz Neurosurgical Institute targets overactive antigens in highly aggressive brain tumors and improves length of survival in newly diagnosed patients, according to new data that was presented in a poster session at the 47th Annual Meeting of the American Society of Clinical Oncology.

Patients with newly diagnosed glioblastoma multiforme, the most common and aggressive type of tumor originating in the brain, typically live only 12 to 15 months after diagnosis even with standard treatments: surgery, radiation and chemotherapy.

In this Phase I clinical trial that started in November 2006, 11 of 16 patients (69 percent) were still alive at 32 months (a median analysis time); six of 16 (38 percent) continued to be disease-free; three have gone almost four years and another three have survived more than 2.5 years with no recurrence. Median progression-free survival – the time from treatment to disease recurrence (median progression-free survival) was 16.9 months.

Phase I trials generally address dosage and safety issues. To further evaluate survival statistics, a randomized, multicenter, placebo-controlled Phase II trial has been launched.

ICT-107 targets six antigens found on glioblastoma cells, three of which also are found on cancer stem cells. Those cells widely are believed to be

the original source of tumor cells, enabling them to resist treatment and recur. The study revealed that all 16 patients had at least three of the targeted antigens and 75 percent had all six. Patients who had four of the antigens (MAGE-A1, AIM2, gp100 and HER2) had better immune responses and longer progression-free survival rates.

Surasak Phuphanich, MD, director of the Neuro-Oncology Program of the Department of Neurosurgery and the Department of Neurology at Cedars-Sinai, termed another finding significant: levels of a protein associated with cancer stem cells (CD133) decreased in patients who had tumor recurrence after vaccination.

"Previous studies showed an increase in CD133 expression in patients who underwent treatment with radiation and chemotherapy. Our findings suggest that targeting antigens that are highly expressed by cancer stem cells may be a viable strategy for treating patients who have glioblastoma," he said.

Phuphanich participated in other multicenter studies that were presented at the ASCO meetings, including:

- "A phase II study of verubulin (MPC-6827) for treatment of subjects with recurrent glioblastoma naïve to treatment with bevacizumab," a poster presentation beginning at 8 a.m. on June 4.

- "A phase II study of monthly pasireotide LAR (SOM230C) for recurrent or progressive meningioma," a poster presentation beginning at 8 a.m. on June 4.

- "A phase II study of daily afatinib (BIBW 2992) with or without temozolomide (21/28 days) in the treatment of patients with

recurrent glioblastoma," an oral platform presentation beginning at 8 a.m. on June 5.

ICT-107 is a product of the biotechnology company ImmunoCellular Therapeutics, Ltd. Keith L. Black, MD, chairman of Cedars-Sinai's Department of Neurosurgery, director of the Maxine Dunitz Neurosurgical Institute and director of the Johnnie L. Cochran, Jr. Brain Tumor Center, is chairman of the company's scientific advisory board. John S. Yu, MD, vice chairman of Neurosurgery, director of the Brain Tumor Center of Excellence, director of Surgical Neuro-Oncology and surgical director of the Gamma Knife Center at Cedars-Sinai, is chief scientific officer, chairman of the board, and shareholder of ImmunoCellular. Certain rights in the dendritic cell vaccine technology and corresponding intellectual property have been exclusively licensed by Cedars-Sinai to ImmunoCellular Therapeutics, including subsequently developed versions of the vaccine investigated in this clinical study.

More information: "Glioma associated antigens associated with prolonged survival in phase I study of ICT-107 for patients with newly diagnosed glioblastoma," (Abstract No. 2042) poster presentation at American Society of Clinical Oncology (ASCO) annual meeting, 8 a.m. to noon CDT, June 4, 2011.

Provided by Cedars-Sinai Medical Center