Interleukin-10 a prognostic factor in treatment with autologous melanoma vaccine

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(PHILADELPHIA) Scientists from the Kimmel Cancer Center at Jefferson have found that interleukin-10 production in tumor cells is a possible prognostic factor in patients with advanced melanoma who are treated with autologous melanoma cell vaccine. They are presenting their data at the 2010 ASCO Annual Meeting in Chicago.

"High production of interleukin-10 (IL-10) in the tumor cells was associated with worse prognosis after patients receive the vaccine," said Amit Mahipal, M.D., a fellow in Hematology/Oncology at Jefferson Medical College of Thomas Jefferson University, and lead author of the study. "Because it downregulates the T cell-mediated immune response, high IL-10 levels in the tumor microenvironment may decrease the effectiveness of the vaccine."

An autologous cancer vaccine is a treatment created from a patient's own tumor cells. When the vaccine is administered to the patient, it may elicit an immune response and kill the tumor cells. IL-10 is a cytokine that plays a major role in adjusting the degree of immune response. It has previously been shown that high IL-10 levels in the blood indicate progression of metastatic melanoma.

In the study, led by Takami Sato, M.D., professor of Medical Oncology at Jefferson Medical College of Thomas Jefferson University, the researchers evaluated 44 patients with stage III and stage IV melanoma. Tumor cells were extracted from melanoma tissues and preserved for vaccine production. Prior to vaccine production, the researchers

separated a small portion of melanoma cells from the tissues. These small portions were then cultured for the production of IL-10. The tumor specimens were used for autologous cancer cell vaccine after modification with a chemical called dinitrophenyl (DNP), which makes tumor cells more foreign to the host immune system.

Overall, the median overall survival for high IL-10 producers was 10.5 months vs. 42 months for low IL-10 producers. The difference in median overall survival was more striking in patients with stage III disease: 9.7 months for high IL-10 producers vs. 84 months for low producers. For stage IV disease, the overall survival for high IL-10 producers was 10.5 months vs. 13.7 months for low producers.

"We think that the vaccine treatment may be more effective if you combine the cancer vaccine with a blockade of IL-10," Dr. Mahipal said.

A specific blockade for IL-10 was already developed and is under investigation by Dr. Sato's group at Thomas Jefferson University.

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