Research shows immune system response is detrimental to novel brain cancer therapy

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For the first time, researchers have demonstrated that the response of natural killer (NK) cells is detrimental to glioblastoma virotherapy, a novel way of treating malignant brain cancer by injecting a virus into the tumor. A number of clinical trials are currently underway to test whether glioblastoma virotherapy will facilitate antitumor efficacy, but research led by E. Antonio Chiocca, MD, PhD, chairman of the Department of Neurosurgery at Brigham and Women's Hospital, and published in *Nature Medicine*, shows that in pre-clinical models, NK cells are killing off the virus – infected cells, thus rendering the therapy less effective.

"This situation is similar to injecting a beneficial drug into a human and the drug is killed off because humans have an antibody against the drug," said Dr. Chiocca, the senior author of the research paper. "This finding will be of great interest to those who are studying experimental biology and tumors of the brain, as well as to patients with malignant brain tumors."

Dr. Chiocca hypothesizes that temporarily suppressing the immune system of glioblastoma patients on a short-term basis could counteract this response and allow the virotherapy work. The study may also expose novel targets to enhance therapy.For more information on the study, the entire manuscript, "NK cells impede glioblastoma virotherapy via NKp30 and NKp46 natural cytotoxicity receptors", is available in *Nature Medicine*.

Provided by Brigham and Women's Hospital