Therapy of glioblastoma multiforme improved by the antimutagenic chloroquine.


Neuroimmunology Unit, National Institute of Neurology and Neurosurgery of Mexico, Mexico City, Mexico.

OBJECT: Therapy of malignant tumors is frequently curtailed by the emergence of chemoresistant cell clones. Experimentally, the authors have demonstrated that chemotherapy for glioma in rats is markedly improved by the administration of the antimutagenic quinacrine. They studied the effects of chloroquine, an antimutagenic with an optimal pharmacological profile for human use, as adjuvant for the treatment of patients with glioblastoma multiforme (GBM). METHODS: In a prospective controlled randomized trial, 18 patients with GBM underwent standard treatment with surgery, chemotherapy, and radiotherapy; nine received an additional 150-mg dose of chloroquine daily starting 1 day after surgery and continued through the observation period. Nine matched patients were included as controls. Neuroimaging studies and clinical response were periodically compared. The follow-up period ranged from 24 to 50 months. Survival time was defined as the main outcome measure. Survival was significantly longer in chloroquine-treated patients than in controls (33 +/- 5 and 11 +/- 2 months, respectively \( p < 0.0002 \)). At the end of the observation period, four patients (46%) treated with chloroquine were alive, two had evidence of tumor remission after 2 years; in another two, tumor recurrence developed after 2 and 4 years of remission, respectively. No control patient survived more than 22 months after surgery. CONCLUSIONS: Chronic administration of chloroquine greatly enhanced the response of GBM to antineoplastic treatment. Because the cytotoxicity of chloroquine on malignant cells is negligible, these favorable results appear mediated by its strong antimutagenic effect that precludes the appearance of resistant clones during radiotherapy and chemotherapy.

PMID: 15727424

Chloroquine in glioblastoma--new horizons for an old drug.

Munshi A. Cancer. 2009 Jun 1;115(11):2380-3
Department of Radiation Oncology, Tata Memorial Hospital, Parel, Mumbai, Maharashtra, India. anusheel8@hotmail.com
PMID: 19326448