

# Cytotoxic chemotherapeutic management of newly diagnosed glioblastoma multiforme

Camilo E. Fadul · Patrick Y. Wen ·  
Lyndon Kim · Jeffrey J. Olson

Received: 9 January 2008 / Accepted: 19 May 2008  
© Springer Science+Business Media, LLC. 2008

## Recommendations

### Level I:

Concurrent and post-irradiation temozolomide is recommended in patients 18–70 years of age with adequate systemic health. This recommendation is supported on evidence from a single class I study.

### Level II:

BCNU-impregnated biodegradable polymers are recommended in patients for whom craniotomy is indicated. This recommendation based on the evidence from two class II studies.

### Level III:

The addition of temozolomide to radiation therapy is an option for patients with newly diagnosed glioblastoma (GBM) who are older than 70 years with a Karnofsky performance status (KPS) above 50. For patients 70 years or older with newly diagnosed GBM, temozolomide alone is a well tolerated alternative to radiation therapy and its benefit might be comparable to that obtained with radiation therapy alone. Radiation therapy followed by one of the nitrosoureas is recommended for those patients who cannot receive temozolomide.

## Rationale

Although chemotherapy is frequently used to treat newly-diagnosed malignant gliomas, its value has been controversial. Recently there has been important progress in defining the role of chemotherapy for newly-diagnosed GBM. In this review, we have searched and evaluated the relevant literature and attempted to formulate guidelines regarding the role of chemotherapy for newly-diagnosed GBM. Additionally, key areas for future study were identified. As the literature on chemotherapy for malignant gliomas is extensive, we have focused on three areas where reasonable evidence is available. These include concurrent and post-irradiation chemotherapy, chemotherapy in the elderly, and interstitial chemotherapy. Other future topics for exploration include: neoadjuvant chemotherapy, radiation-sensitizers, high-dose chemotherapy with autologous stem cell support, chemotherapy for newly-diagnosed anaplastic astrocytomas and oligodendrogliomas, as well as chemotherapy for recurrent malignant gliomas.

---

C. E. Fadul  
Neuro-Oncology Program, Norris Cotton Cancer Center,  
Dartmouth Hitchcock Medical Center, Dartmouth Medical  
School, Lebanon, NH, USA

P. Y. Wen  
Center for Neuro-Oncology, Dana Farber/Brigham and  
Women's Cancer Center and Department of Neurology,  
Brigham and Women's Hospital, Boston, MA, USA

L. Kim  
Neuro-oncology Branch, NCI, National Institutes of Health,  
Bethesda, MD, USA

J. J. Olson (✉)  
Department of Neurosurgery, Emory University School  
of Medicine, 1365B Clifton Rd., NE, Ste. 6200, Atlanta,  
GA 30322, USA  
e-mail: jeffrey.olson@emoryhealthcare.org