

Treatment of recurrent high-grade gliomas with GliSite brachytherapy: a prospective mono-institutional Italian experience

Carlo Gobitti¹, Eugenio Borsatti², Mauro Arcicasa¹, Mario Roncadin¹, Giovanni Franchin¹, Emilio Minatel¹, Miran Skrap³, Bruno Zanotti³, Francesco Tuniz³, Marino Cimitan², Elvira Capra⁴, Annalisa Drigo⁴, and Mauro G Trovò¹

¹Radiation Oncology, ²Nuclear Medicine, and ⁴Medical Physics Divisions, Centro di Riferimento Oncologico, National Cancer Institute, Aviano; ³Neurosurgery Department, University Hospital, Udine, Italy

ABSTRACT

Aims and background. The present study evaluated toxicity, local control, and survival in patients with relapsed high-grade glioma after surgery and external beam radiation therapy and treated with re-operation and GliSite brachytherapy.

Methods. Between 2006 and 2008, 15 patients with recurrent high-grade glioma underwent re-operation and GliSite brachytherapy. Ten patients were males and 5 females. Median age was 40 years (range, 20-71). Karnofsky performance status was ≥ 70 . All patients but one received GliSite irradiation of the surgical cavity wall at the dose of 4500 cGy at a depth of 1 cm.

Results. No severe acute side effects were observed during GliSite brachytherapy. Pathologically documented, symptomatic late radiation necrosis was observed in 3 patients (20%); 2 subsequently died of further complications. Two patients were alive at a median follow-up 13 months (range, 1-30). Median overall survival after GliSite brachytherapy was 13 months.

Conclusions. Patients with recurrent high-grade glioma can be treated with additional surgery and GliSite brachytherapy, delivering 4500 cGy at 1 cm depth without significant acute side effects but with a significant rate (20%) of late radiation necrosis, resulting in 13% of treatment-related deaths. Compared with the literature, survival results in our study appear to be satisfactory, but they may be related to patient selection criteria. Re-intervention followed by GliSite brachytherapy should not be offered as a standard treatment for recurrent high-grade glioma, because of the high rate of late complications, treatment-related deaths, and high treatment costs.

Key words: brachytherapy, GliSite, high-grade glioma, local recurrence.

Acknowledgments: the authors would like to thank Daniela Michilin for her help with the manuscript and editorial assistance.

Disclosure of funding: No funding was received for this work.

Conflict of interest: the authors declare no conflict of interest.

Correspondence to: Carlo Gobitti, MD, Radiation Oncology Dept., Centro di Riferimento Oncologico (CRO), Via F. Gallini 2, 33081 Aviano, Italy. Tel +39-0434-659-523; fax +39-0434-659-524; e-mail cgobitti@cro.it

Received November 26, 2010; accepted January 21, 2011.