

Tumor Location Affecting Survival in Patients with Supratentorial Astrocytic Tumors

Hitoshi TSUGU, Seisaburo SAKAMOTO, Shinya OHSHIRO,
Masaaki YAMAMOTO and Takeo FUKUSHIMA

Department of Neurosurgery, Fukuoka University School of Medicine

Abstract: Object: To assess the value of tumor location as a prognostic factor in patients suffering from supratentorial astrocytic tumors.

Methods: We retrospectively evaluated 117 patients in terms of the prognostic factors influencing survival after a surgical resection and external beam radiotherapy, with or without adjuvant chemotherapy. Survival was evaluated using a univariate analysis, and a multivariate analysis by the proportional hazards method proposed by Cox and was estimated by Kaplan-Meier survival analysis using both the generalized Wilcoxon and log-rank tests.

Results: Although the prognosis was strongly influenced by histological grade, the frontal lobe and non-eloquent areas as primary sites were shown by a multivariate analysis to be significant positive prognostic factors, when the survival was evaluated the factors excluding the histological grade. In grade 2 tumors, the operative resectability and non-eloquent area involvement positively influenced the survival time, but a primary location in the cerebral lobes did not. In grade 3 and 4 tumors, the survival time was increased for frontal lobe tumors, however, the difference was statistically insignificant, and radiotherapy was the only statistically significant prognostic factor influencing survival.

Conclusion: Cytoreductive surgery, which can be carried out in non-eloquent areas and might be influenced by the primary site of the tumor, is important to obtain an increased survival for patients with grade 2 tumors. With grade 3 and 4 tumors, the prognosis was not found to be influenced by the primary site of the tumor. Therefore, the authors recommend either a partial or subtotal removal of the tumor and postoperative irradiation above 55 Gy under in order to obtain a relatively good quality of life if the astrocytic tumor is located in a critical area.

Key words: astrocytoma, anaplastic astrocytoma, glioblastoma, tumor location, prognostic factor