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Late-line treatment with bevacizumab alone or in combination with chemotherapy in recurrent high-grade gliomas

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Abstract

Purpose: Bevacizumab's use in recurrent high-grade glioma is controversial. This study evaluates outcomes in recurrent high-grade glioma patients receiving bevacizumab alone or combined with chemotherapy as a late-line treatment.

Methods: We retrospectively analyzed patients treated with bevacizumab alone or combined with chemotherapy for high-grade gliomas who showed tumor progression after multiple treatment attempts. Overall survival (OS) and progression-free survival (PFS) were analyzed with Kaplan-Meier curves. Predictors of PFS according to prognostic variables were assessed with regression analysis.

Results: Between 2010 and 2022, 31 consecutive patients received bevacizumab alone or combined with chemotherapy as a late-line treatment for recurrent high-grade gliomas. Of these patients, 14 (45.2%) were responders according to RANO criteria, and 17 (54.8%) showed progressive or stable disease. OS at 3, 6, and 12 months was 80.3%, 62.1%, and 43.5. PFS was 48.4%, 34.3%, and 21.8%, respectively. In the multivariate survival analysis, the only factor independently associated with PFS was smaller 2D tumor size in post-contrast T1-weighted MRI at bevacizumab initiation (p = 0.02). Median time-to-progression was 3 months (95%CI: 1-4) in the unmethylated MGMT promoter group and 6 (95%CI: 1-11) in the methylated MGMT promoter group. This difference was not statistically significant (p = 0.37).

Conclusions: Bevacizumab alone or in combination with chemotherapy could be beneficial as a late-line therapy in a subset of patients with recurrent high-grade glioma. Small 2D tumor size in post-contrast T1 weighted MRI at bevacizumab initiation was independently associated with prolonged time to progression.

Keywords: High-grade glioma. Glioblastoma. Bevacizumab. O6 methylguanine-DNA methyl-transferase (MGMT). Recurrence.