

ABSTRACT

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Patterns of recurrence according to the extent of resection in patients with IDH-wild-type glioblastoma: a retrospective study.

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OBJECTIVE: In glioblastoma (GBM) patients, controlling the microenvironment around the tumor using various treatment modalities, including surgical intervention, is essential in determining the outcome of treatment. This study was conducted to elucidate whether recurrence patterns differ according to the extent of resection (EOR) and whether this difference affects prognosis.

METHODS: This single-center study included 358 eligible patients with histologically confirmed isocitrate dehydrogenase (IDH)-wild-type GBM from November 1, 2005, to December 31, 2018. Patients were assigned to one of three separate groups according to EOR: supratotal resection (SupTR), gross-total resection (GTR), and subtotal resection (STR) groups. The patterns of recurrence were classified as local, marginal, and distant based on the range of radiation. The relationship between EOR and recurrence pattern was statistically analyzed.

RESULTS: Observed tumor recurrence rates for each group were as follows: SupTR group, 63.4%; GTR group, 75.3%; and STR group, 80.5% ($p = 0.072$). Statistically significant differences in patterns of recurrences among groups were observed with respect to local recurrence (SupTR, 57.7%; GTR, 76.0%; STR, 82.8%; $p = 0.036$) and distant recurrence (SupTR, 50.0%; GTR, 30.1%; STR, 23.2%; $p = 0.028$). Marginal recurrence showed no statistical difference between groups. Both overall survival and progression-free survival were significantly increased in the SupTR group compared with the STR and GTR groups ($p < 0.0001$).

CONCLUSIONS: In this study, the authors investigated the association between EOR and patterns of recurrence in patients with IDH-wild-type GBM. The findings not only show that recurrence patterns differ according to EOR but also provide clinical evidence supporting the hypothesized mechanism by which distant recurrence occurs.

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