

ABSTRACT

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Impact of radiotherapy delay following biopsy for patients with unresected glioblastoma.

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OBJECTIVE: Because of the aggressive nature of glioblastoma, patients with unresected disease are encouraged to begin radiotherapy within approximately 1 month after craniotomy. The aim of this study was to investigate the potential association between time interval from biopsy to radiotherapy with overall survival in patients with unresected glioblastoma.

METHODS: Patients with unresected glioblastoma diagnosed between 2010 and 2014 who received adjuvant radiotherapy and concurrent chemotherapy were identified in the National Cancer Database. Demographic and clinical data were compared using chi-square and Wilcoxon rank-sum tests. Survival was analyzed using the Kaplan-Meier method and Cox proportional hazards regression modeling.

RESULTS: Among 3456 patients with unresected glioblastoma, initiation of radiotherapy within 3 weeks of biopsy was associated with a higher hazard of death compared with later initiation of radiotherapy. After excluding patients who received radiotherapy within 3 weeks of biopsy to minimize the effects of confounders associated with short time intervals from biopsy to radiotherapy, the median interval from biopsy to radiotherapy was 32 days (IQR 27-39 days). Overall, 1782 (66.82%) patients started radiotherapy within 5 weeks of biopsy, and 885 (33.18%) patients started radiotherapy beyond 5 weeks of biopsy. On multivariable analysis, there was no significant difference in overall survival between these two groups (HR 0.96, 95% CI 0.88-1.50; $p = 0.374$).

CONCLUSIONS: In patients with unresected glioblastoma, a longer time interval from biopsy to radiotherapy does not appear to be associated with worse overall survival. However, external validation of these findings is necessary given that selection bias is a significant limitation of this study.

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