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Short Delay in Initiation of Radiotherapy May Not Affect Outcome of Patients With Glioblastoma: A Secondary Analysis From the Radiation Therapy Oncology Group Database

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Purpose: To analyze the Radiation Therapy Oncology Group (RTOG) database of patients with glioblastoma and appraise whether outcome was influenced by time to initiation of radiation therapy (RT).

Patients and Methods: From 1974 through 2003, adult patients with histologically confirmed supratentorial glioblastoma were enrolled onto 16 RTOG studies. Of 3,052 enrolled patients, 197 patients (6%) were either initially rendered ineligible or had insufficient chronologic data, leaving a cohort of 2,855 patients for the present analysis. We selected four patient groups based on the interval from surgery to the start of RT: ≤ 2 weeks, 2 to 3 weeks, 3 to 4 weeks, more than 4 weeks to the protocol eligibility limit of 6 weeks. Survival times were estimated by the Kaplan-Meier method. Multivariate analysis incorporated variables of time interval, recursive partitioning analysis (RPA) class, and treatment regimen.

Results: No decrement in survival could be identified with increasing time to initiation of RT. Among our four temporal groupings, median survival time was unexpectedly and significantly greater in the group with the longest interval (> 4 weeks) than in those with the shortest delay (≤ 2 weeks): respectively, 12.5 months versus 9.2 months ($P < .0001$). On multivariate analysis, with overall survival as the end point, time interval more than 4 weeks and lower RPA class were both significant predictors of improved outcome. Treatment regimen was not a significant factor.

Conclusion: There is no evident reduction in survival by delaying initiation of RT within the relatively narrow constraint of 6 weeks. An unanticipated yet significantly superior outcome was identified for patients for whom RT was delayed beyond

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