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Radiotherapy and temozolomide for newly diagnosed glioblastoma: recursive partitioning analysis of the EORTC 26981/22981-NCIC CE3 phase III randomized trial.

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Abstract

PURPOSE: The European Organisation for Research and Treatment of Cancer and National Cancer Institute of Canada trial on temozolomide (TMZ) and radiotherapy (RT) in glioblastoma (GBM) has demonstrated that the combination of TMZ and RT conferred a significant and meaningful survival advantage compared with RT alone. We evaluated in this trial whether the recursive partitioning analysis (RPA) retains its overall prognostic value and what the benefit of the combined modality is in each RPA class.

PATIENTS AND METHODS: Five hundred seventy-three patients with newly diagnosed GBM were randomly assigned to standard postoperative RT or to the same RT with concomitant TMZ followed by adjuvant TMZ. The primary end point was overall survival. The European Organisation for Research and Treatment of Cancer RPA used accounts for age, WHO performance status, extent of surgery, and the Mini-Mental Status Examination.

RESULTS: Overall survival was statistically different among RPA classes III, IV, and V, with median survival times of 17, 15, and 10 months, respectively, and 2-year survival rates of 32%, 19%, and 11%, respectively ($P < .0001$). Survival with combined TMZ/RT was higher in RPA class III, with 21 months median survival time and a 43% 2-year survival rate, versus 15 months and 20% for RT alone ($P = .006$). In RPA class IV, the survival advantage remained significant, with median survival times of 16 v 13 months, respectively, and 2-year survival rates of 28% v 11%, respectively ($P = .0001$). In RPA class V, however, the survival advantage of RT/TMZ was of borderline significance ($P = .054$).

CONCLUSION: RPA retains its prognostic significance overall as well as in patients receiving RT with or without TMZ for newly diagnosed GBM, particularly in classes III and IV.

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