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Short-course Palliative Hypofractionated Radiotherapy in Patients with Poor-prognosis Highgrade Glioma: Survival and Quality of Life Outcomes from a Prospective Phase II Study

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Abstract

Aims: To report longitudinal quality of life (QoL) outcomes and survival in patients with poorprognosis high-grade glioma (HGG) treated with palliative hypofractionated radiotherapy.

Materials and methods: Patients with poor-prognosis HGG were accrued on a prospective study of short-course palliative hypofractionated radiotherapy (35 Gy/10 fractions/2 weeks). The European Organization for Research and Treatment of Cancer QoL core questionnaire (QLQ-C30) and brain cancer module (BN20) were used in English or validated Indian vernacular languages (Hindi and Marathi) for QoL assessment at baseline (before radiotherapy), the conclusion of radiotherapy, 1 month post-radiotherapy and subsequently at 3-monthly intervals until disease progression/death. Baseline QoL scores were compared with corresponding scores from a historical HGG cohort. Summary QoL scores were compared longitudinally over time by related samples Friedman's two-way test. Progression-free survival and overall survival were calculated using the Kaplan-Meier method and reported as 1-year estimates with 95% confidence intervals.

Results: Forty-nine (89%) of 55 patients completed the planned course of hypofractionated radiotherapy. Longitudinal QoL data were available in 42 (86%) of 49 patients completing radiotherapy, comprising the present cohort. The median age of included patients, comprised mainly of glioblastoma patients (81%), was 57 years, with an interquartile range (IQR) of 50-66 years and a median baseline Karnofsky score of 60 (IQR = 50-60). Baseline QoL scores were significantly worse for several domains compared with a historical institutional cohort of HGG patients treated previously with conventionally fractionated radiotherapy, indicating negative selection bias. QoL scores remained stable for most domains after palliative hypofractionated radiotherapy, with statistically significant improvements in fatigue (P = 0.032), dyspnoea (P = 0.042) and motor dysfunction (P = 0.036) over time. At a median follow-up of 8 months, Kaplan-Meier estimates of 1-year progression-free survival and overall survival were 33.3% (95% confidence interval 21.7-51.1%) and 38.1% (95% confidence interval 25.9-56%), respectively.

Conclusion: Short-course palliative hypofractionated radiotherapy in patients with poor-prognosis HGG is associated with stable and/or improved QoL scores in several domains, making it a viable resource-sparing regimen.

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