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Hypo-fractionated Radiotherapy (HF-RT) *Versus* Conventionally Fractionated Radiotherapy (CF-RT) for Glioblastoma

Oksana Zemskova [1] [2], Eugene Pedachenko [2], Nathan Y Yu [3], Dirk Rades [4]

Affiliations

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Abstract

Background/aim: Hypo-fractionated radiotherapy (HF-RT) is increasingly used for elderly and frail glioblastoma patients. In countries with limited radiotherapy capacities, HF-RT is more widely applied. This allowed us to compare conventional fractionation (CF-RT) vs. HF-RT in patients of any age and performance status.

Patients and methods: We retrospectively analysed 277 patients [110 HF-RT (52.5 Gy in 15 fractions) vs. 167 CF-RT (54.0-60.0 Gy in 27-33 fractions)] for local control (LC) and overall survival (OS) including subgroups considering specific patient characteristics.

Results: On univariable comparisons, CF-RT was associated with significantly better LC and OS in patients with KPS ≤70 and unifocal glioblastoma, and with OS in the entire cohort. Trends were found for LC and OS in patients aged <60 years, and for OS in additional four subgroups. On multivariable analyses, improved LC and OS were significantly associated with CF-RT, KPS 80-100, unifocal glioblastoma, resection, and receipt of chemotherapy. Maximum diameter <45 mm was associated with improved OS.

Conclusion: Given the limitations of this study, CF-RT appeared associated with better outcomes. Selected patients may benefit from HF-RT.

Keywords: Glioblastoma; comparative study; conventionally fractionated radiotherapy; hypo-fractionated radiotherapy; local control; overall survival.