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Impact of frailty on survival glioblastoma, IDH-wildtype patients

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Abstract

Purpose: Frailty increases the risk of mortality among patients. We studied the prognostic significance of frailty using the modified 5-item frailty index (5-mFI) in patients harboring a newly diagnosed supratentorial glioblastoma, IDH-wildtype.

Methods: We retrospectively reviewed records of patients surgical treated at a single neurosurgical institution at the standard radiochemotherapy era (January 2006 - December 2021). Inclusion criteria were: age ≥ 18, newly diagnosed glioblastoma, IDH-wildtype, supratentorial location, available data to assess the 5-mFI index.

Results: A total of 694 adult patients were included. The median overall survival was longer in the non-frail subgroup (5-mFI < 2, n = 538 patients; 14.3 months, 95%CI 12.5-16.0) than in the frail subgroup (5-mFI ≥ 2, n = 156 patients; 4.7 months, 95%CI 4.0-6.5 months; p < 0.001). 5-mFI ≥ 2 (adjusted Hazard Ratio (aHR) 1.31; 95%CI 1.07-1.61; p = 0.009) was an independent predictor of a shorter overall survival while age ≤ 60 years (aHR 0.78; 95%CI 0.66-0.93; p = 0.007), KPS score ≥ 70 (aHR 0.71; 95%CI 0.58-0.87; p = 0.001), unilateral location (aHR 0.67; 95%CI 0.52-0.87; p = 0.002), total removal (aHR 0.54; 95%CI 0.44-0.64; p < 0.0001), and standard radiochemotherapy protocol (aHR 0.32; 95%CI 0.26-0.38; p < 0.0001) were independent predictors of a longer overall survival. Frailty remained an independent predictor of overall survival within the subgroup of patients undergoing a first-line oncological treatment after surgery (n = 549) and within the subgroup of patients who benefited from a total removal plus adjuvant standard radiochemotherapy (n = 209).

Conclusion: In newly diagnosed supratentorial glioblastoma, IDH-wildtype patients treated at the standard combined radiochemotherapy era, frailty, defined using a 5-mFI score ≥ 2 was an independent predictor of overall survival.

Keywords: Frailty; Glioblastoma; IDH wild-type; Prognosis; Survival.