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Dexamethasone and overall survival and progression free survival in patients with newly diagnosed glioblastoma: a meta-analysis

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Abstract

Purpose: Glioblastomas, the most common primary malignant brain tumors in adults, still hold poor prognosis. Corticosteroids, such as dexamethasone, are usually prescribed to reduce peritumoral edema and limit neurological symptoms, although potential detrimental effects of these drugs have been described. The present meta-analysis aimed to explore the association of dexamethasone with overall survival (OS) and progression free survival (PFS) in patients with newly diagnosed glioblastoma.

Methods: PubMed, Cochrane Library, Embase, and ClinicalTrials.gov were searched for pertinent studies following the Preferred Reporting Items of Systematic Review and Meta-Analysis checklist. Pooled multivariable-adjusted hazard ratios (HR) for OS and PFS and their associated 95% confidence intervals (CIs) were calculated using the random-effects model and the heterogeneity among studies was assessed using I^2 . The quality of evidence was assessed using the GRADE criteria.

Results: Seven studies were included, pooling data of 1,257 patients, with age varying from 11 to 81 years. Glioblastoma patients on pre- or peri-operative dexamethasone were associated with a significantly poorer overall survival (HR: 1.33, 95% CI: 1.15, 1.55; 7 studies; I^2 : 59.9%) and progression free survival (HR: 1.77, 95% CI: 1.05, 2.97; 3 studies; I^2 : 71.1%) compared to patients not on dexamethasone. The quality of evidence was moderate for overall survival and low for progression free survival.

Conclusion: Dexamethasone appeared to be associated with poor survival outcomes of glioblastoma patients.

Keywords: Dexamethasone; Glioblastoma; Glioma; Meta-analysis; Steroids; Survival.

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