The impact of hyperglycemia on survival in glioblastoma: A systematic review and meta-analysis.

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In the management of glioblastoma (GBM), there is a considerable predisposition to hyperglycemia due to significant integration of corticosteroid therapy to treat predictable clinical sequelae following diagnosis and treatment. The aim of this study was to quantify effect of hyperglycemia during the management of GBM on overall survival (OS). Searches of seven electronic databases from inception to January 2018 were conducted following Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. There were 1475 articles identified for screening. Prognostic hazard ratios (HRs) derived from multivariate regression analysis were extracted, and analyzed using meta-analysis of proportions and linear regression. Six observational studies reporting prognostic HRs in 10 cohorts were included. They described 1481 GBM diagnoses, all surveyed for hyperglycemia during management. Hyperglycemia was found to confer a statistically significant poorer OS outcome (HR, 1.671; p < 0.001). This trend and its significance was not modified by study year, size or proportion of pre-diagnostic diabetes mellitus. Hyperglycemia in GBM is an independent poor prognostic factor for OS. Heterogeneity in clinical course limits inter-study comparability. Future, prospective, randomized studies will validate the findings of this study, and ascertain the potential benefit of more rigorous monitoring for hyperglycemia and glycemic control.

KEYWORDS: Blood glucose; Glioblastoma; Hyperglycemia; Prognosis; Survival

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