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The prevalence of post-therapy epilepsy in patients treated for high-grade glial tumors: a systematic review and meta-analysis

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Abstract

Gliomas are the most prevalent type of primary brain tumor of the adult central nervous system. High-grade gliomas (HGG) are the most common type of glioma. Epilepsy is often the first clinical manifestation of HGG. Since epilepsy leads to increased morbidity and mortality rates, seizure control is one of the main therapeutic goals for patients with glioma-related epilepsy. Post-therapy epilepsy is observed in a significant percentage of patients, hence, this work aimed to quantify the prevalence of post-therapy epilepsy after HGG treatment. Our search was conducted across PubMed®, EMBASE®, Web of Science™, Cochrane Library, Scielo and Scopus, adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. This review included articles published in Portuguese or English that evaluate adult patients with newly diagnosed HGG, who were treated with at least surgery or radiation. Thirty-six studies reporting on 4036 HGG patients were included in our meta-analysis. The mean age ranged from 44 to 73 years. Glioblastoma was the most commonly observed HGG, representing 77,8% of all glioma patients. The pre-treatment seizure frequency was observed in 21,2%. All patients underwent surgery as the main therapy, and 1842 patients received standard adjuvant therapy. We also observed a pooled prevalence of post-therapy seizures of 25.5% (95% confidence interval of [19.9%; 31.1%]). Substantial heterogeneity in all assessed variables was observed. Conducting larger prospective studies with suitable epilepsy diagnostic methods would help provide a more precise estimate of the number of HGG patients who develop post-therapy epilepsy.

Keywords: Astrocytoma; Glioblastoma; High-grade glioma; Oligodendroglioma; Post-therapy epilepsy; Systematic review.

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