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[Review](#) > [Br J Neurosurg](#). 2023 Jan 24;1-8. doi: 10.1080/02688697.2023.2170326.

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Management of brain tumour related epilepsy (BTRE): a narrative review and therapy recommendations

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Abstract

Brain Tumour Related Epilepsy (BTRE) has a significant impact on Quality of Life with implications for driving, employment, and social activities. Management of BTRE is complex due to the higher incidence of drug resistance and the potential for interaction between anti-cancer therapy and anti-seizure medications (ASMs). Neurologists, neurosurgeons, oncologists, palliative care physicians and clinical nurse specialists treating these patients would benefit from up-to-date clinical guidelines. We aim to review the current literature and to outline specific recommendations for the optimal treatment of BTRE, encompassing both Primary Brain Tumours (PBT) and Brain Metastases (BM). A comprehensive search of the literature since 2000 on BTRE was carried out in PubMed, MEDLINE and EMCARE. A broad search strategy was used, and the evidence evaluated and graded based on the Oxford Centre for Evidence-Based Medicine Levels of Evidence. Seizure frequency varies between 10 and 40% in patients with Brain Metastases (BM) and from 30% (high-grade gliomas) to 90% (low-grade gliomas) in patients with PBT. In patients with BM, risk factors include number of BM and melanoma histology. In patients with PBT, BTRE is more common in patients with lower grade histology, frontal and temporal tumours, presence of an IDH mutation and cortical infiltration. All patients with BTRE should be treated with ASMs. Non-enzyme inducing ASMs are recommended as first line treatment for BTRE, but up to 50% of patients with BTRE due to PBT remain resistant. There is no proven benefit for the use of prophylactic ASMs, although there are no randomised trials testing newer agents. Surgical and oncological treatments i.e. radiotherapy and chemotherapy improve BTRE. Vagus Nerve Stimulation has been used with partial success. The review highlights the relative dearth of high-quality evidence for the management of BTRE and provides a framework for further studies aiming to improve seizure control, quality of life, and indications for ASMs. KEY POINTS Offer levetiracetam or lamotrigine to all patients with primary or metastatic brain tumours who have seizure(s), irrespective of whether these are partial or generalised. ASM withdrawal for patients in remission is not recommended due to high rates of seizure recurrence. ASM prophylaxis is not generally recommended in the management of seizure-naïve patients. Both levetiracetam and lamotrigine are safe in pregnancy and breastfeeding.

Keywords: Seizures; anti-convulsants; anti-seizure medications; brain metastases; primary brain tumours.

LinkOut – more resources

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