Efficacy and tolerability of levetiracetam versus phenytoin after supratentorial neurosurgery

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Background: Antiepileptic drugs are routinely given after craniotomy. Though phenytoin (PHT) is still the most commonly used agent, levetiracetam (LEV) is increasingly administered for this purpose. This retrospective study compared the use of LEV and PHT as monotherapy prophylaxis following supratentorial neurosurgery.

Methods: Patients receiving LEV monotherapy after supratentorial craniotomy were reviewed and compared to a control group of patients receiving PHT monotherapy.

Results: One of 105 patients taking LEV and 9/210 patients taking PHT had seizures within 7 days of surgery ($p = 0.17$). Adverse drug reactions requiring change in therapy during hospitalization occurred in 1/105 patients taking LEV and 38/210 patients taking PHT ($p < 0.001$). Among patients followed for at least 12 months, 11/42 (26%) treated with LEV vs 42/117 (36%) treated with PHT developed epilepsy ($p = 0.34$); 64% remained on LEV, while 26% remained on PHT ($p = 0.03$).

Conclusions: Both levetiracetam (LEV) and phenytoin (PHT) were associated with a low risk of early postoperative seizures and a moderate risk of later epilepsy. LEV was associated with significantly fewer early adverse reactions than PHT and with a higher retention rate in patients who were followed for at least 1 year and developed epilepsy.

Abbreviations: ADR = adverse drug reaction; AED = antiepileptic drug; CBZ = carbamazepine; LEV = levetiracetam; PB = phenobarbital; PHT = phenytoin; VPA = valproate.
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