

Journal Article




Temozolomide treatment does not affect topiramate and oxcarbazepine plasma concentrations in chronically treated patients with brain tumor-related epilepsy

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Abstract *Objective* Medical management of brain tumor-related epilepsy is complicated by interactions between antiepileptic and chemotherapeutic drugs. We studied the effect of temozolomide therapy on the disposition of the new antiepileptic drugs topiramate (TPM) or oxcarbazepine (OXC). *Methods* Fifteen patients chronically treated with TPM or OXC in monotherapy starting a chemotherapeutic treatment with temozolomide were enrolled in the study, of which ten were available for the final analyses. Blood samples were collected before temozolomide treatment (T_0), at its end (T_7) and after further 1–3 weeks (T_{14} – T_{28}). For each patient, more than one treatment cycle was studied. Topiramate and OXC mono-10-hydroxy derivative (MHD) plasma concentrations were determined by hplc coupled with ion spray mass spectrometer (TPM) or ultraviolet (MHD) detection. *Results* Mean TPM concentrations were $5.4 \pm 2.4 \mu\text{g/ml}$ at T_0 vs. $5.5 \pm 2.4 \mu\text{g/ml}$ at T_7 ($n = 14$), and $5.4 \pm 2.4 \mu\text{g/ml}$ at T_0 vs. $5.6 \pm 2.8 \mu\text{g/ml}$ at T_{14} – T_{28} ($n = 14$). Mean MHD concentrations were $16.4 \pm 7.6 \mu\text{g}$ at T_0 vs. $18.5 \pm 9.0 \mu\text{g/ml}$ at T_7 ($n = 5$), and $16.8 \pm 7.0 \mu\text{g/ml}$ at T_0 vs. $18.0 \pm 8.7 \mu\text{g/ml}$ at T_{14} – T_{28} ($n = 8$) (all comparisons not statistically significant; Student's *t*-test for paired samples). *Conclusion* Temozolomide treatment did not affect TPM plasma concentrations in chronically treated patients. Data for MHD in OXC-

treated patients were similar, but, due to the small sample size, results should be interpreted cautiously. These findings confirm that TPM (and possibly OXC) are a reasonable choice of antiepileptic drug in patients with brain tumor-related epilepsy.

Keywords Drug interactions - Oxcarbazepine - Temozolomide - Topiramate - Brain tumor-related epilepsy

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References secured to subscribers.

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