

# Valproic Acid effectiveness in minimizing incidence of seizures in postoperative pediatric brain tumor patients - Pilot Study

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Valproic acid (VPA) has found clinical use as an anticonvulsant and mood-stabilizing drug, primarily in the treatment of epilepsy. VPA mechanism of action is believed to be the inhibition of the transamination of GABA and also blocks the voltage-gated sodium channels and T-type calcium channels, which makes VPA a broad spectrum anticonvulsant drug.

Seizures can present at any time before or after diagnosis of a brain tumor. The risk of seizures varies by tumor type and its location in the brain. It was believed that preventing seizures with antiepileptic drugs was effective and necessary, but it was later concluded through some reviews that seizure prophylaxis was ineffective in people with brain tumors. However, postoperative seizure prophylaxis after brain tumor resection is still controversial.

## Aim of the Study

To assess Valproic acid Effectiveness in postoperative seizure prophylaxis in pediatric brain tumor patients.

## Methods

A retrospective review of pediatric brain tumor patients was performed to evaluate the effect of Valproic acidVPA on postoperative seizure prophylaxis. The patients were monitored for a period of the 3 months postoperatively to determine whether Valproic acidVPA was effective in prophylaxis from seizures. The data collected included the patients' age, sex, weight, prescribed antiepileptic drugs AED, platelet count, albumin, and liver enzymes, duration of Valproic acidVPA treatment, serum Valproic acidVPA concentration and any other medications the patients were receiving. Any clinical intervention and any drug interaction were recorded.

## Results

Sixty patients were eligible for this study, 27 patients received VPA and 33 received no AED. Seven patients from the VPA group had a history of seizures compared to 2 patients only in the non-VPA group. Postoperatively, a Total total of 8 patients had seizures, one patient in the VPA group with an onset of 36 days, and 6 patients in the non-VPA group with an average onset of 32 days. postoperatively (13.3%).From the VPA group 7 patients had history of seizures before surgery, where the Non- VPA group had only 2 patients who had history of seizures before surgery. Inthe VPA group seizures occurred postoperatively in 1 patient(3.7%), withan onset of36days.In the Non VPA group seizures occurred postoperatively in 6 patients (18%), with an average onset of 32 days. Comparing the incidence of seizures postoperatively using Fisher's exact test, the difference between the two groups was not statistically significantly different (p=0.11).

## Conclusion

Although VPA tended to reduced the incidence of seizure events and to delay the onset of seizures postoperatively in brain tumor patients, the difference was not statistically significantly different. Further studies are needed to investigate this difference on a larger number of patients to examine whether the difference observed is real.