The effect of antiepileptic drugs on the evoked potentials of children with epilepsy

Sherifa Ahmad Hamed a,*, Essam Saad Darwish a, Ahmed Hamdy Youssef a, Naglaa H. Abo-Fadan b, Mostafa M. Abdellah c and Ali Mabrokh Salem Bathalath d

Abstract:

Studies using multimodal sensory evoked potentials (SEPs) in children with epilepsy are lacking or few and controversial. We aimed to assess the SEPs, which included: (visual, brainstem and somatosensory evoked potentials) in children with epilepsy treated with carbamazepine (CBZ), valproate (VPA) or lamotrigine (LTG) monotherapy. Forty epileptic children and 25 healthy children were included. Compared to healthy children, children on VPA had prolonged P100 and waves III and IV latencies and reduced P100 amplitude. Children on CBZ had prolonged P100, waves IV and V and N20 latencies and III-V and N9-N20 interpeak latencies. Children on LTG had prolonged N145, waves I, II, III and IV latencies. Significant correlations were identified between the dose of VPA and P100 amplitude (P = 0.001), the dose of CBZ and P100 (P = 0.016); wave V (P = 0.049) latencies and I-III (P = 0.047) and III-V (P = 0.031) interpeak latencies and between the duration of treatment with CBZ and wave IV and V (P = 0.004; P = 0.002) latencies, between the dose of LTG and N9 (P = 0.050), N11 (P = 0.035) and N20 (P = 0.030) latencies and N9-N11 (P = 0.017) and N9-N20 (P = 0.003) interpeak latencies. No significant correlations were identified between SEPs variables and age at onset or duration of illness. This study suggested that antiepileptic drugs (AEDs) might induce changes in central SEPs indicating central nervous system impairment secondary to AEDs. Although none of the children had manifest sensory changes, however, AEDs can induce clinical manifestations with chronic or long-term use. (J Pediatr Epilepsy 2012; 1(2):)

Keywords:

Childhood, epilepsy, antiepileptic drugs, evoked potentials, valproate, carbamazepine, lamotrigine

Published In:

Journal of Pediatric Epilepsy , NULL , NULL