Journal of Vessels and Circulation

28th Congress of Neurology & Clinical Electrophysiology of Iran, 3-6 August 2021

Antiepileptic drugs in women with epilepsy before, during, and after pregnancy

Soheila Rezakhani

Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran

During pregnancy, the pharmacokinetics of an antiepileptic drug is altered because of changes in the clearance capacity and volume of distribution. These changes may have consequences for the frequency of seizures during pregnancy and fetal exposure to antiepileptic drugs. we aim to formulate advice for dose modification and therapeutic drug monitoring of antiepileptic drugs. We searched PubMed and the available literature on the pharmacokinetic changes of antiepileptic drugs and seizure frequency during pregnancy published between January 2007 and September 2020. During pregnancy, an increase in clearance and a decrease in the concentrations of lamotrigine, levetiracetam, oxcarbazepine's active metabolite licarbazepine, topiramate, and zonisamide were observed. Carbamazepine clearance remains unchanged during pregnancy. We advise monitoring of antiepileptic drug trough concentrations twice before pregnancy. This is the reference concentration. We also advise to consider dose adjustments guided by therapeutic drug monitoring during pregnancy if the antiepileptic drug concentration decreases 15–25% from the pre-pregnancy reference concentration, in the presence of risk factors for convulsions. If the antiepileptic drug concentration changes more than 25% compared with the reference concentration, dose adjustment is advised. Monitoring of levetiracetam, licarbazepine, lamotrigine, and topiramate is recommended during and after pregnancy. Because of the risk of teratogenic effects, valproate should be avoided during pregnancy. If that is impossible, monitoring of both total and unbound valproate is recommended.