

New research suggests common anti-seizure medications may increase risk of cardiovascular problems

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An important clinical repercussion in the treatment of epilepsy has been discovered by a research team led by Scott Mintzer, M.D., assistant professor in the Department of Neurology and the Jefferson Comprehensive Epilepsy Center at Jefferson Medical College of Thomas Jefferson University. The team has determined that two of the most commonly prescribed anti-seizure medications may lead to significantly increased levels of cholesterol, C-reactive protein and other markers of cardiovascular disease risk. The finding - set to be published in the March 18th online edition of *Annals of Neurology* - may help doctors manage the care of patients with seizures more effectively by prescribing different anti-seizure medications that will not adversely affect cardiovascular health.

The study involved two of the most widely-prescribed anticonvulsants - phenytoin (Dilantin®) and carbamazepine (Tegretol®, [Carbatrol®](#)) - which have potent effects on many enzymes in the body involved in different areas of metabolism. The researchers recruited 34 [epilepsy](#) patients taking either one of those two drugs who were being switched over to one of two newer anti-seizure drugs which do not widely affect enzymes - lamotrigine (Lamictal®) or [levetiracetam](#) (Keppra®). The goal was to determine if the change affected the patients' [cholesterol](#) levels and other key markers of [cardiovascular disease](#).

Just 6 weeks after the patients' drugs were switched, there were

significant declines in total cholesterol, non-high-density lipoprotein (commonly referred to as 'bad') cholesterol, triglycerides and C-reactive protein, suggesting the older, commonly-used drugs might substantially increase the risk of cardiovascular disease.

"The epilepsy patients in this study saw a rapid and clinically significant improvement in several markers related to cardiovascular disease, including a decrease in total cholesterol that averaged 26 points. This is almost certainly not due to some positive effect from the new drugs. It's a consequence of being taken off the older ones, which were causing the cholesterol and other markers to be elevated in the first place," said Dr. Mintzer. "While more investigation is needed, these results may help physicians better understand the risks of these drugs and choose the most appropriate treatment for their epilepsy patients, especially those who are already at risk for cardiovascular disease or have a family history of it."

According to the Epilepsy Foundation, which also funded this study, there are almost three million people living with epilepsy with an additional 200,000 new diagnoses being made each year. Dilantin is the most commonly prescribed anticonvulsant in this country, and has been since its discovery in 1938. Throughout the industrialized world, Tegretol has been the most commonly prescribed anticonvulsant for more than 20 years. The results of this study could have far-reaching effects on how the millions of current, and future patients are, or will be, treated.

Source: Thomas Jefferson University

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