

Epilepsy, antiepilepsy drugs, and serious car crashes

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People with epilepsy live daily with uncertainty about many aspects of their lives. Some of the top concerns are the risk of breakthrough seizures and how these may affect the ability to legally and safely drive.¹

Antiepileptic drugs (AEDs) are the first choice of therapy for most people diagnosed with epilepsy. Even if those with epilepsy are not restricted from driving because of ongoing seizures, they could be considered impaired under the law. This is because AEDs have potential side effects. These unwanted side effects include problems with vision, balance, memory, reaction times, and attention.

Practitioners can better counsel patients and their families about driving crash risks when everyone has the best information.

How was the study done?

Sundelin et al.² used large national databases in Sweden to study whether AED use among those with epilepsy leads to increased serious car crashes. Using the national medical database, the authors found and followed more than 29,000 people with epilepsy from 2006 to 2013.

The people studied were adults 18 years or older. People with lifelong cerebral palsy and cognitive impairment were excluded as the researchers assumed they were not drivers. The epilepsy group was compared to a group of 260,000 people who did not have epilepsy. Both groups were the same in all other respects.

Sweden has a national health care system, so all services, medication use, and other aspects of health care use could be tracked by the researchers. Researchers studied information including prescription data and office and emergency room visits, including trauma due to car crashes. Treatment for serious car crashes was then linked with prior epilepsy diagnosis and use of AEDs.

Patients were followed for a long time unless they died or moved out of the country. The authors compared age; marital/relationship status; sex; coexisting psychiatric conditions; car, bicycle, and motorcycle crashes; and pedestrian-involved crashes between the 2 groups.

What were the results?

The main finding was that those with epilepsy were about 30% more likely to have motor vehicle crashes compared to people without epilepsy. This was similar to the findings of earlier studies.

It should be noted that epilepsy is not the only medical condition that increases the risks of motor vehicle crashes. Other conditions such as diabetes and heart disease have similar risks. It is also important to keep in mind that the risk of fatal crashes was very low. People with epilepsy had a fatal crash rate of less than 0.1%. This reported fatal crash rate is also similar to prior studies looking at motor vehicle crashes in people with epilepsy.³

Men and women in Sweden have similar crash rates. This is different from the United States, where men have higher crash rates. The authors suggested that the lack of sex differences in crash rates in Sweden was due to cultural differences unique to that country. This study also showed a higher rate of psychiatric conditions in the epilepsy group.

Modern AEDs such as oxcarbazepine, carbamazepine, lamotrigine, and levetiracetam were the most used drugs in the study group. The most important finding in this study is that AEDs did not appear to play a role in motor vehicle crashes in people with epilepsy requiring medical attention.

What does it mean?

Patients with epilepsy have many concerns about their disease and epilepsy-associated stigma. The burden of the disease often affects quality of life. Both the degree of seizure control and adverse effects of AEDs may affect personal relationships, jobs, schooling, and especially driving.

The authors of this study found that AEDs did not increase the risk of serious car crashes. While a person's response to AEDs may differ, the study can be used to talk to patients about safe driving.

About epilepsy and driving

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Epilepsy is an ongoing neurologic condition of repeated seizures. It has been reported that 1 in 27 people will develop epilepsy during their lives.⁴ Seizures and epilepsy are seen in all groups of people around the world.

Seizures may range from mild events without loss of awareness to major motor seizures with loss of awareness and severe uncontrollable movements of muscles (convulsions). Seizures are unpredictable, leading to legal limits on the ability of people with epilepsy to drive. All states in the United States and all countries around the world have such laws. The driving limits are usually based on what is known as the seizure-free interval (SFI). Local laws defining the necessary SFI vary widely. Driving restrictions for patients and the ability to legally drive are major concerns.¹ The required SFI typically ranges from 3 to 12 months.⁴

Most patients take seizure medications as their first choice of treatment. AEDs are often taken for long periods of time (months to years). Seizure medications work in the brain and can cause slowed reactions, unsteadiness, and many other potential side effects. Patients, families, providers, and driving authorities may express concern that the side effects of these seizure medications may affect safe driving.

Before this study, there was no direct evidence to guide patients and doctors about how seizure drugs affect the complex act of driving. The potential for AEDs to affect driving is an important concern. Most driving under the influence (DUI) laws do not consider recreational drugs (alcohol) different from prescription drugs. Impaired driving is impaired driving no matter what the cause is.

The purpose of DUI and epilepsy driving restriction laws is to protect the public. Therefore, the patient and provider need the best information when considering driving while using AEDs. There is no perfect solution because seizures are unpredictable. Whether driving or not, this unpredictability contributes to safety concerns for patients.

The driving discussion between the provider and the patient should focus on following driving laws and staying safe during other activities where there is potential harm to the patient or others.

Talking about safety issues also provides opportunities. Maximizing safety is closely tied to reducing the risk of seizure recurrence. Patients should take medications regularly, get proper sleep, and make efforts to reduce stress.

While results of using any AED may vary, there is some comfort in knowing that in general modern AEDs do not lead to serious car crashes.

References

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Additional resources

Individual states' driving requirements (and other safety issues) for people with epilepsy
Epilepsy Foundation of America
epilepsy.com/driving-laws

Epilepsy/seizure medication facts and use
Epilepsy Foundation of America
epilepsy.com/learn/treating-seizures-and-epilepsy/seizure-medication-list

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