

TOWARD A MORE PRAGMATIC VIEW OF DRIVING AND EPILEPSY

Seizure-related Motor Vehicle Crashes in Arizona before and after Reducing the Driving Restriction from 12 to 3 Months

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OBJECTIVE: To evaluate whether changing the seizure-free interval in Arizona from 12 months to 3 months affected the number of seizure-related motor vehicle crashes.

METHODS: We performed a time-trend study with analysis of motor vehicle crash reports in the state of Arizona 3 years before (1991–1993) and 3 years after (1994–1996) the seizure-free interval was decreased from 12 to 3 months. The number of motor vehicle crashes related to seizures, other medical conditions, and other nonmedical crashes was compared before and after the law changed. Other population trends, including population growth, registered vehicles, and registered drivers, also were reported.

RESULTS: Seizure-related crashes increased from 125 to 136 for the 3 years before and 3 years after the law changed, respectively. The total rate of seizure-related crashes did not increase on the basis of an incidence-rate difference of $-0.03/10$ (9) miles [95% confidence interval (CI), -0.30 to 0.24] and a relative risk of 0.98 (95% CI, 0.77 to 1.24). Over the same interval, crashes related to other medical conditions increased from 288 to 310, for an incidence rate difference of $-0.09/10$ (9) miles (95% CI, -0.51 to 0.33) and a relative risk of 0.97 (95% CI, 0.82 to 1.13). Fatalities due to seizure-related crashes decreased during the same period, whereas the number of multiple-vehicle crashes increased.

CONCLUSIONS: The rate of seizure-related crashes did not significantly increase in the state of Arizona after the seizure-free interval was reduced from 12 to 3 months.

COMMENTARY

Driving with epilepsy is an emotional subject for patients not only in the United States, but also in Europe, Japan, and surely, for the rest of the world. Driving prohibitions affect people not only in rural areas and where public transportation is deficient. Even in the large cities of Europe, driving often is essential for gainful employment. Therefore patients can become combative and noncompliant when, because of epilepsy, they are not allowed to drive. To drive in the European Union, seizure-free intervals (SFIs) of 1 to 2 years are required. For professional drivers, driving restrictions can be as long as 5 years, such as occurs in Sweden. These rules may seem harsh, but the goal is noble—to improve road safety as well as to try to prevent accidents and save lives.

Do stricter rules help? The study by Drazkowski et al. indicates that they may not. A long period of driving restriction is a heavy verdict for many individuals, and as a consequence, strict rules may reduce compliance. Thus seizure-related accidents in Japan (a country with very strict regulations regarding epilepsy patients and driving) are as high as in other countries where the SFI for driving is lower, perhaps for this very reason (1,2).

It is encouraging to read the present article and to note the real risks associated with epilepsy patients and driving. In Arizona, the SFI for driving was drastically reduced from 12 months to just 3 months. An analysis was made of all the motor crashes in the whole state of Arizona for 3 years before the change and 3 years after the change. The increase in population, number of motor vehicles, and time spent on the road increased, so these data also were figured into the analysis. The authors found that fatalities occurring as a result of seizures actually decreased, and the number of seizure-related accidents did not increase. However, crashes that were due to other medical causes increased during this period. Arizona was a good state in which to carry out this analysis because driving conditions are generally stable all year around, reducing the intervening variables of bad roads and weather conditions.

The results reported by Drazkowski et al. were indeed encouraging. Driving, in itself, is an activity filled with risks. The question to ask is whether the risk is acceptable. The annual risk of being in an accident for an average driver in a private car is 10%, and 0.25% of all accidents are related to seizures. Sonnen (1) estimated that the chances of the average driver

being involved in an accident with someone having a seizure would occur once in every 4000 years!

In judging the risks related to epilepsy and driving, several factors should be taken into consideration. For example, did the patient have a solitary seizure? Was it a seizure provoked by stressors, such as fatigue, alcohol, or low blood sugar? Are the seizures only nocturnal? Are they preceded by distinct auras? Are they only simple partial seizures? What is the seizure frequency? In Australia, the SFI is 2 years, but many exceptions to the rule are allowed, signifying acceptance of a more liberal approach (3). Here the different aspects of seizure quality are taken into account, because no single law can cover all situations. In Australia, for recently diagnosed seizures, the SFI is 3 to 6 months. For chronic and active epilepsy, the SFI is up to 2 years. SFI, occurring as a result of antiepileptic drug withdrawal or provocation, is 1 month, and for seizures without provocation, the SFI is 3 months.

In conclusion, each state and country must agonize over the controversies of driving and seizures and weigh the risks with a good dose of common sense. The results show that the rate of seizure-related crashes did not increase in Arizona when the SFI was reduced to just 3 months. The Draskowski et al. article should help convince authorities who determine driving regulations to have a more liberal and flexible approach to the problem.

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References

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