



## Understanding variability in driving recommendations for patients with seizures



Sidrah Mahmud\*, Sean T. Hwang

Department of Neurology, North Shore University Hospital, Hofstra Northwell School of Medicine, 300 Community Drive, Manhasset, NY 11030, USA

### ARTICLE INFO

#### Article history:

Received 21 June 2017

Revised 1 September 2017

Accepted 22 September 2017

Available online xxxx

#### Keywords:

Epilepsy  
Seizures  
Driving  
Restrictions  
Motor vehicle accidents  
Patient safety

### ABSTRACT

**Background:** There is lack of consensus regarding driving restrictions for patients with epilepsy. Regulations vary by state. New York State (NYS) recommends driving restrictions for one year in a person with an episode of loss of consciousness (LOC), with physician discretion. Often, providers make recommendations to permit their patients to drive after a shorter seizure-free period than proposed guidelines. The prevalence and reasons behind more lenient recommendations have not been elucidated.

**Methods:** Forty-one neurologists were surveyed anonymously in Nassau County, New York. They were questioned about the length of recommended driving restrictions ( $\leq 1$ , 3, 6, or  $\geq 12$  months) that they typically provide to patients with suspected seizures in different clinical scenarios and overall reasons for doing so. Data about level of training, setting of practice, use of antiepileptic drug (AED) levels, and electroencephalogram (EEG) were also collected.

**Results:** Of the 41 neurologists surveyed, 72% reported recommending driving restrictions  $< 12$  months for patients who experienced LOC, without a confirmed diagnosis of seizure. The majority also recommended driving restriction of  $< 12$  months for other scenarios including acute symptomatic seizure, exclusively simple partial seizures, nocturnal seizures, psychogenic nonepileptic seizures (PNES), and seizures occurring with or during AED reduction. The most common rationale was to improve patient autonomy and independence. Less than a third of neurologists estimated that the majority of their patients were noncompliant with driving recommendations.

**Conclusion:** We found that many neurologists' recommendations for limiting driving for patients with seizure-related episodes are shorter than those recommended by NYS. Furthermore, as there are no specific guidelines for questionable epileptic scenarios and seizures occurring nocturnally or without LOC, this appears to contribute to substantial variability in the duration of recommended driving restrictions. This opens a broad discussion about approaches towards advising driving limitations in order to protect public and patient safety while maintaining patient autonomy.

© 2017 Elsevier Inc. All rights reserved.

### 1. Introduction

Having a seizure while driving is a serious safety concern for people with epilepsy (PWE) and their healthcare providers. According to recent estimates, approximately 1.8% of adults aged 18 years or older have a diagnosis of epilepsy or seizure disorder in the United States [1]. Among them the exact number of those with epilepsy who are licensed drivers is unknown, as not all patients (only 14 to 50%) report their condition to the licensing bureau [2,3]. However, a population survey revealed that about 57% of PWE have a driving license [4]. Only 11% of motor vehicle accidents (MVAs) involving PWE are due to seizures, with the majority

of MVAs being due to driver error [5]. The proportion of MVA resulting from seizures is lower than the risk of MVA from other chronic conditions [6]. In fact, the percentage of MVAs precipitated by a medical emergency in general is low at 1.3% [7]. Though the risk for sustaining a MVA is not high for drivers with well-controlled seizures, those patients who do have a seizure while driving have a 55% chance of crashing [8,9]. This accounts for a significant proportion of accident-related fatalities, at 4.2% [7,10].

Given the potential risk of accidental injury and fatality, most states have established driving regulations for PWE. Restrictions vary widely and are usually determined by the length of the seizure-free period [3]. There is no consensus on the safest time period after which to resume driving; however, longer seizure-free intervals are associated with significantly reduced risk for seizure-related crashes [11,12]. One population study estimated that the risk of MVA was reduced by 93% for PWE with a 12-month seizure-free interval compared with those with shorter intervals (i.e., risk reduction of 85% at 6 months, and 57% at 3 months) [12]. States typically restrict driving from between three

*Abbreviations:* PWE, people with epilepsy; MVA, motor vehicle accident; DMV, Department of Motor Vehicles; NYS, New York State; LOC, loss of consciousness; AED, antiepileptic drug; EEG, electroencephalogram; PNES, psychogenic nonepileptic seizures.

\* Corresponding author.

E-mail addresses: [sidrah.mahmud@yale.edu](mailto:sidrah.mahmud@yale.edu) (S. Mahmud), [shwang2@northwell.edu](mailto:shwang2@northwell.edu) (S.T. Hwang).

to twelve months and sometimes permit flexibility based on input from a physician. Presumably, the reason behind such variability may be due to counterbalancing public safety with factors such as patient autonomy and independence.

Studies have shown, however, that stricter or more prolonged regulations correlate with higher rates of noncompliance [13]. Substantial nonadherence has been reported in countries even where a relatively short seizure-free period is required [12]. Noncompliance with driving recommendations has been described including in groups of patients with severe epilepsy. In a study of 367 patients with intractable seizures presenting as candidates for epilepsy surgery, 31% had driven in the last year, most on a weekly basis [14]. From this group, of the drivers with crashes due to seizures, 80% reported one MVA; 10% reported two; and 10% reported more than three. Drivers often conceal their seizures because of fear of loss of license and reduction in quality of life [15]. Some of the main reasons why PWE continue to drive are due to the need to access employment and the lack of alternative transportation options [16–18]. Nearly a third of PWE in one population study who continued to drive for employment reasons did so despite poorly controlled seizures. Self-disclosure of an epilepsy diagnosis may depend on the perceived risk of detection and the anticipated consequences of disclosure. Thirty percent of patients admitted they would never reveal the diagnosis to another person no matter the situation [19].

In consideration of the legal ramifications and impacts on patient quality of life, there is lack of consensus not only between states, but also between physicians. For example, according to the Department of Motor Vehicles (DMV) regulation (15 CRR-NY 9.3) in New York State (NYS), a person is deemed fit for licensing if “such person has not experienced a loss of consciousness within the previous 12-month period, and such person submits a physician’s, physician assistant’s, or nurse practitioner’s statement confirming such fact,” though exceptions may be made upon the written advice of a physician, and if there are no grounds for the NYS Medical Review Board to object. Physicians are not legally mandated to report patients with active seizure disorders to the DMV, but are advised to consider doing so. Patients are reported if there is an accident-related police report, otherwise they disclose their medical condition voluntarily or with their application for an initial license or renewal. In clinical practice, patients with active epilepsy in NYS commonly continue to hold an active driver’s license. While recommendations by the physician do not constitute legal enforcement, the burden of making patients aware of the dangers of driving with seizures, monitoring their compliance, and reporting select patients to the DMV may fall upon the physician.

Specific language in the NYS regulation also includes a provision that a person to be deemed fit for licensing prior to the recommended 12-month period “if such person submits a physician’s, physician assistant’s, or nurse practitioner’s statement confirming the physician’s, physician assistant’s, or nurse practitioner’s awareness of any or all such incidents and notwithstanding such history, the physician, physician assistant, or nurse practitioner recommends licensing by making a positive statement that, in his or her opinion, the condition will not interfere with such person’s safe operation of a vehicle on the public highway, and the commissioner acting after recommendation of his or her medical consultant finds no grounds to disagree...”. Providers in NYS often make written recommendations to permit their patients to drive after a shorter period of freedom from seizures with loss of consciousness (LOC) than the legal guideline of one year. The reasons behind doing so are not well understood. Many factors may play a role in shorter physician recommendations regarding driving restrictions. For example, there may be a desire to maintain patient autonomy and employment. There may be concerns that providing patients with harsher restrictions may negatively affect the patient–doctor relationship and result in patients seeking medical advice elsewhere.

In the context of advocating a three-month seizure-free interval, a consensus statement from the American Academy of Neurology, American Epilepsy Society (AES), and the Epilepsy Foundation of

America discussed a number of additional modifying factors. For example, physicians may take into account potentially mitigating clinical scenarios such as purely nocturnal seizures, an isolated event due to change in medication/acute illness, focal seizures with preserved awareness, or consistent and prolonged auras [20]. However, more than twenty years later, anecdotal evidence suggests that there is significant continued lack of uniformity in the advice given by neurologists. Because of the gap between legal requirements, clinical guidelines, and clinical practice, we set out to determine current driving recommendations provided by neurologists to their patients, their reasons for recommending reinstatement of driving privileges after shorter periods of seizure freedom, and areas in need of further study. In doing so, we hope to provide practical information to lawmakers and physicians to assist in optimizing patient autonomy along with public safety.

## 2. Methods

### 2.1. Survey methods

One hundred thirty-three neurologists were surveyed anonymously in suburban Long Island, New York. Surveys were completed via online questionnaires sent to a list of both academic and private-practice neurologists. Survey respondents were of varying levels of professional achievement, including neurology residents, and board certified neurologist both with and without epilepsy-related subspecialty training. They were questioned about the length of driving restrictions they typically recommend to their patients with suspected seizures in different clinical scenarios and their reasons for doing so.

### 2.2. Survey questions

The survey was comprised of the questions shown in Fig. 1. Given the nature and content of the survey, approval by an institutional review board was not required. All those who were surveyed provided written informed consent with guarantees of confidentiality.

## 3. Results

Of the 133 neurologists surveyed, 45 (33.8%) responded. Of the 43 neurologists who responded, 41 (30.8%) provided complete surveys. Only completed surveys were used for data analysis. Among these respondents 34% [15] were neurology residents, 20% [9] had completed a clinical neurophysiology or epilepsy fellowship, and 46% [20] were neurologists trained in neither clinical neurophysiology nor epilepsy fellowships. Nearly three-quarters (72.5%) of respondents worked in an academic setting, and the rest (27.5%) worked in a private-practice setting.

When asked about driving recommendations, the majority of respondents advocated driving restrictions of less than 12 months in various clinical scenarios (Table 1 & Fig. 2). The least likely scenario to prompt a recommendation of less than 12 months was when a seizure occurred in the setting of an abnormal EEG. The scenarios most likely to prompt a recommendation of less than 12 months were when advising antiepileptic drug (AED) reduction or cessation, when there remained diagnostic uncertainty regarding an episode of loss of awareness, and after a seizure occurring in the context of physician-directed AED reduction. When advocating for driving restrictions less than 12 months as per the legal guidelines neurologists provide multiple reasons for doing so. The leading cause was to improve patient autonomy and independence (Fig. 3). Our survey revealed that 61% of physicians routinely utilized electroencephalogram (EEG) to help determine eligibility to drive if patients were clinically seizure-free. In addition, 50% of physicians routinely ordered AED levels for compliance if patients were seizure-free and driving. There were divergent beliefs regarding patient compliance, though only less than a third of

Download English Version:

<https://daneshyari.com/en/article/8683868>

Download Persian Version:

<https://daneshyari.com/article/8683868>

[Daneshyari.com](https://daneshyari.com)