

Seizures and Epilepsy: An Evidence-Based Approach

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Canada has approximately 200,000 patients with active epilepsy. The cumulative incidence of unprovoked seizures through to the age of 70 years is approximately 4%.^{1,2} Physicians are often faced with the question of when to and whether to start antiepileptic medications (AEDs) after the first or additional unprovoked seizures. Seizure-free patients on AEDs also seek counselling from their physicians regarding the risks and benefits of discontinuing these drugs.

Risk of seizure recurrence

The five-year risk of seizure recurrence after a single unprovoked seizure is approximately 35%. The five-year risk of a third seizure, after two unprovoked seizures, is 73%.^{3,4} Patients with a known history of the following have the highest risk of seizure recurrence:

- significant head injury,
- central nervous system infections,
- strokes,
- brain tumours,
- symptomatic seizures in the past,
- generalized spikes and waves on the electroencephalogram (EEG) and
- Todd's paralysis.

A multicenter study examining the immediate vs. deferred AED treatment for early epilepsy

Trisha's case

Trisha, 26, presents to the ER with the first-witnessed tonic-clonic seizure of her life.

Her past medical history is unremarkable for seizures or other neurological disorders. The following tests are normal:

- Detailed neurological examination
- CT scan of the head and
- Electroencephalogram

She is reluctant to start antiepileptic medications (AEDs) and wants to know the risks and benefits of treatment.

Questions

1. What is Trisha's risk of seizure recurrence if she decides not to take any AEDs?
2. If Trisha agrees to take AEDs, how significantly does that lower her risk for seizure recurrence?
3. What additional information should one consider when deciding the pros and cons of initiating treatment with AEDs?

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demonstrated that immediate AED treatment reduces the occurrence of seizures in the next one year to two years,⁵ but does not affect the long-term remission. Among 722 patients randomized to immediate treatment, 32% had a

seizure recurrence at two years time, compared with 39% of the 721 patients in the deferred treatment group. In patients who had multiple seizures at the time of presentation, the risk of seizure recurrence at two-years time was much higher in the deferred group (61% vs. 43% in the immediate treatment group).

How to safely withdraw AEDs

In 1991, a prospective, multicentre randomized study published in *Lancet* evaluated the seizure recurrence in 1,013 patients randomized to ongoing treatment vs. slow withdrawal. These patients had been seizure free for two years or more. Two years after randomization, 22% of the patients in whom treatment was continued vs. 41% of those in whom it was withdrawn had seizure recurrence. The risk of seizure recurrence was inversely related to the duration of seizure freedom. Patients who were on more than one AED and who had a history of tonic-clonic seizures had a higher risk of recurrence.

Case discussions

It is important to inform and discuss with the patient the consequences of treatment vs. delayed or deferred treatment. All of the following should be considered when making this assessment/decision:

- the patient's profession,
- social consequences of having a seizure,
- driving status,
- lifestyle,
- home environment and
- family support.

Lee's case

Lee, a 30-year-old man with a previous diagnosis of epilepsy, presents to your clinic. He reports being seizure free for the past five years while taking carbamazepine (CBZ). Although he denies experiencing any side-effects, he is interested to know whether he can safely taper off this medication.

Questions

1. What is Lee's risk of seizure recurrence if he tapers off this medication?
2. What is the risk of seizure recurrence if he decides to continue the CBZ at the present dose?

Keep reading to find out the answers to these questions.

At the same time, the patient should be fully informed about the potential short-term and long-term side-effects of the AED being considered for treatment. The seizure type should also be taken in account.

In some patients, the side-effects of AEDs may be more bothersome than the seizures. It is therefore imperative to discuss the dose-dependent, long-term and idiosyncratic side-effects with patients before initiating treatment. Some patients may be able to live with simple partial seizures, rather than taking AEDs on a daily basis. On the other hand, a patient working at a high-risk job may be safer taking AEDs until job modification is implemented.


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When tapering a patient off AEDs, provide them with the numbers for the probability of seizure recurrence, with and without AEDs. If a patient does decide to stop taking AED, taper it off slowly and instruct the patient not to drive during the taper period and for at least six months once they are completely off medications. The driving rules are variable between different provinces and should be reviewed before counselling the patient. Patients are instructed to call their doctor's office in case of a seizure recurrence, with the understanding that medication will be resumed.

Conclusion

The decision to start or withdraw AEDs should be based on an evidence-based discussion with the patient. The physician can help his/her patient make the decision by educating them about the risks and benefits of each option, in the context of the:

- physical,
- psychological,
- social and
- vocational well being of the individual. 

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