

Seizures: Idiopathic Epilepsy

A. Courtenay Freeman, DVM

Marc Kent, DVM, DACVIM (Small Animal and Neurology)

Simon R. Platt, BVM&S, MRCVS, DACVIM (Neurology), DECVN

BASIC INFORMATION

Description

Idiopathic epilepsy is a disorder of recurring seizures of unknown cause. In dogs, a genetic or inherited influence has been proven for some breeds. All diagnostic tests used to search for the causes of seizures are normal in animals with idiopathic epilepsy. Idiopathic epilepsy is a common cause of seizures in dogs, but it is uncommon in cats.

Cause

It is theorized that an imbalance in brain chemistry causes an excess of excitatory nerve impulses and a deficiency of inhibitory nerve impulses. Consequently, the brain is predisposed to excessive stimulation, which results in seizures. Idiopathic epilepsy is diagnosed more commonly in purebred dogs such as the German shepherd dog, border collie, golden retriever, and Labrador retriever but can occur in any dog. Idiopathic epilepsy typically affects dogs from 1 to 5 years of age but may develop at any age.

Clinical Signs

Animals with idiopathic epilepsy have recurring seizures. Most seizures last 1 to 3 minutes, and they can occur at any time of the day. Time between seizures can be as short as minutes or as long as months. The time between seizures is called the *interictal* period. The Latin term *ictus* refers to a seizure. Affected animals are normal between seizures and do not have any neurologic abnormalities on physical examination.

Seizures can take many different forms. The most common form is a generalized seizure (grand mal seizure) in which the animal is unconscious and unresponsive. It may fall or lie down. The legs are often rigidly stretched out or drawn up toward the body. The limbs may jerk or paddle as if running. Chewing motions, excessive salivation, urination, or defecation may occur. For a Description of other manifestations of seizures, see the handout on **Seizures: Causes and Diagnosis**.

Diagnostic Tests

The diagnosis of idiopathic epilepsy requires eliminating all other diseases that can cause seizures. Evaluation of an animal with seizures includes physical and neurologic examinations, routine laboratory tests, and sometimes x-rays. Additional tests may be recommended based on results of these tests or if metabolic or toxic causes must be ruled out. Imaging of the brain using magnetic resonance imaging (MRI) or computed tomography (CT scan) and analysis of cerebrospinal fluid may also be recommended to evaluate for an underlying brain disease. Animals with idiopathic epilepsy have normal test results.

TREATMENT AND FOLLOW-UP

Treatment Options

Treatment is unlikely to prevent all future seizures in most animals. Instead, treatment is aimed at reducing the duration, severity, and frequency of seizures. Several antiepileptic drugs are available to control seizures. (For specific information regarding treatment, see the handouts **Seizures: Treatment** and **Seizures: Treatment of Resistant Cases**.)

Several factors require consideration prior to therapy, because treatment is lifelong and costly and has potential side effects. It is helpful to keep a diary of the seizures, to establish any patterns of frequency, duration, severity, and other characteristics. This information can affect the decision on when to begin antiepileptic therapy and can aid in determining the need to adjust therapy.

Treatment is generally recommended in the following situations:

- The seizures occur more frequently than once every 6-8 weeks.
 - More than one seizure occurs during the first episode. More than one seizure in a 24-hour period is referred to as a *cluster seizure*.
 - The first seizure lasted more than 20 minutes or multiple seizures occurred over a short period of time without the animal regaining normal consciousness and behavior in between. Continuous seizure activity is called *status epilepticus*.
 - The animal's quality of life is impaired by the seizure activity.
- Not every animal with idiopathic epilepsy requires treatment. For instance, an animal that has experienced only a single, isolated seizure is not usually started on medication. Instead, the affected animal may be monitored, and the frequency of any future seizures helps determine when to start therapy. Additionally, animals with infrequent seizures may require no treatment.

It is important to see a veterinarian immediately if more than one seizure occurs in a 24-hour period, if seizure activity continues beyond 5 minutes, or if recovery of consciousness and behavior is not complete between seizures.

Follow-up Care

Patient follow-up is described in the handouts on **Seizures: Treatment** and **Seizures: Treatment of Resistant Cases**.

Prognosis

Prognosis for animals with idiopathic epilepsy is usually good, because many of these seizures can be controlled. Animals that are well controlled on anticonvulsant medications can live normal, healthy lives with idiopathic epilepsy. The prognosis is guarded for animals with poorly controlled seizures.