



# ACVIM

Neurology  
Fact Sheet

## **ACVIM Fact Sheet: Idiopathic Epilepsy**

### ***Overview***

Also known as primary epilepsy, idiopathic epilepsy (IE) is diagnosed in about 5% of the canine population. IE is defined as recurrent seizures with no identifiable structural (e.g. brain tumors, trauma, inflammation) or biochemical (e.g. low blood sugar, toxin) cause. The onset of seizures with IE typically occurs between six months and six years of age. Dogs outside of this age range are more likely to have an underlying cause for their seizures (secondary epilepsy).

In cats, the incidence of IE is low (~0.5%) and the onset of seizures typically occurs between one and eight years of age.

### ***Signs & Symptoms***

Many sudden events may be falsely identified as seizures. It is important to identify behavior changes such as nausea, attention seeking, difficulty seeing or hiding that may occur just before or after a seizure, but not with other events such as fainting. Most generalized seizures involve loss of consciousness where the animal will be unable to respond to any sounds or visual cues. They may also paddle, urinate and defecate during the seizure. It is not true that all idiopathic epileptics will have generalized seizures from the onset, though this does seem to be more common than partial seizures, where animals may remain alert. A dog or cat with IE should be completely normal in between seizure episodes. Multiple seizures in a day or a seizure lasting longer than five minutes is a medical emergency.

### ***Diagnosis***

If there is any doubt about an event being a seizure, video investigation by a veterinarian is sometimes helpful. More definitively, a veterinary neurologist can perform an EEG. This is a test where electrodes are placed on the head to look for abnormal brain activity. Like any test, EEG is not 100% reliable at detecting abnormalities.

Compatible age, normal physical examination, normal neurologic examination, and normal bloodwork are the minimum requirements for a presumptive diagnosis of IE. Ideally, a complete blood count (CBC), full chemistry panel with electrolytes, bile acid profile, and a urine test (urinalysis) are recommended.

More definitive testing includes an MRI of the brain and collection of spinal fluid. These tests should both be normal in a dog or cat with IE. Abnormalities in an MRI or spinal fluid test suggest that there is an underlying disorder affecting the nervous system leading to the seizure.

### ***Treatment & Aftercare***

There is no cure for IE and it is unusual to completely eliminate all seizure activity. However, anticonvulsant medications can help decrease the frequency and severity of the seizures hopefully providing a good quality of life. Two or more seizures within an eight-week period or seizures lasting longer than five minutes require initiating medication. A wide variety of medications to control seizures are now available. The most commonly used medications to treat IE are phenobarbital, potassium bromide (KBr), zonisamide, and levetiracetam. There are advantages and disadvantages with each medication and these should be discussed with the veterinarian overseeing treatment for the animal. Many dogs (~80%) will require one medication to have a significant reduction in their seizure activity. Other dogs may require several medications and some dogs will still have many seizures even with appropriate medications.

Appropriate monitoring of anticonvulsant serum concentrations is of utmost importance when managing epileptics. This allows the veterinarian to make appropriate changes to dosing to help maximize seizure control and minimize side effects. Failure to perform adequate monitoring is the most common reason for treatment failure in epileptic dogs.

### ***Prognosis***

Seizure frequency and severity can greatly impact quality of life for animals and thus is a significant factor in determining prognosis. If seizure activity is greatly reduced with medication and the medication is well-tolerated, the prognosis for a long life is generally good. If seizures continue to occur regularly despite appropriate medications, not only will quality of life be an issue, but brain damage or death from ongoing seizure activity may occur.

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