

Seizures

What are Seizures?

Seizures are the most frequently observed neurological sign in veterinary medicine. A seizure is the clinical expression of heightened electrical activity within the cerebral cortex. Generalized tonic-clonic seizures, commonly referred to as 'grand mal', and are the predominant type of seizures seen in both dogs and cats. These seizures are typically marked by rigidity in the neck and legs, unsteady movements leading to falls, uncontrollable chewing, excessive drooling, paddling motions of the limbs, loss of bladder control, defecation, intense shaking/trembling, and loss of consciousness.

Seizures may persist for a duration ranging from a few seconds to several minutes, with an average duration of approximately one minute. During this time, the patient is generally unaware of their surroundings. In rare instances, seizures may become prolonged or fail to cease, a condition known as status epilepticus.

Following a seizure, your pet might seem confused, disoriented, dazed, or lethargic; this phase is referred to as the postictal period.

Before the onset of a seizure, numerous pets may undergo an aura phase. This phase might not always be identified and can persist for a duration ranging from a few seconds to several minutes. It is marked by your pet displaying signs of anxiety, fear, or confusion, as though they are aware of an impending seizure.

Numerous other medical conditions or episodes can resemble seizures such as vertigo, neck pain, syncope (fainting), narcolepsy/cataplexy, REM sleep movements, and various movement disorders (including dyskinesias, myoclonus, myotonia, etc.). Consequently, the primary initial task for the neurologist is to ascertain whether the patient is genuinely experiencing seizures. Taking a video of your pet during an episode can help the doctor with diagnosis.

What Causes a Seizure?

In general, seizures may arise from issues external to the brain or from complications within the brain itself. Some causes include metabolic disturbances, toxins, head injuries, infectious diseases, inflammatory brain disorders, congenital anomalies, and brain tumors.

The primary reason for seizures in young dogs aged 6 months to 6 years is idiopathic or genetic epilepsy. In contrast, cats experiencing seizures are more prone to having a discernible underlying cause, although idiopathic epilepsy can also be present in felines.

What is Idiopathic Epilepsy?

Epilepsy can be described as the presence of two or more seizures that take place within a timeframe of at least one month. It is important to note that epilepsy is not classified as a distinct disease; rather, it serves as a clinical indication.

Idiopathic epilepsy is a diagnosis that is made by excluding other conditions. A dog diagnosed with 'idiopathic' epilepsy should typically be between the ages of 6 months and 6 years, although there may be exceptions. These patients exhibit normal neurological function between seizures and will show normal results in metabolic tests, have a structurally normal brain as seen on MRI, and present normal findings in CSF analysis.

Diagnostic Tests

Recommended tests for your pet may include: bloodwork (Chemistry profile, CBC, pre and postprandial bile acids), urinalysis, blood pressure, testing for infectious diseases, MRI of brain +/- spinal tap.

What is the Prognosis?

Management of canine idiopathic epilepsy can be achieved in approximately 70-80% of cases that are treated with antiseizure medications such as Phenobarbital (PB), Potassium Bromide (KBr), Keppra, or Zonisamide as a standalone therapy. Each case is distinct, and the choice of anticonvulsant(s) to administer is determined by:

- Age of the animal
- Frequency of seizures
- Compliance of the owner/ease and frequency of administration
- Adverse effects
- Expense of medication and therapeutic monitoring (such as serum phenobarbital levels, chemistry, CBC, etc.)

Phenobarbital (PB) and potassium bromide (KBr, applicable to dogs only) are both highly effective first-line antiepileptic drugs for canines. Additionally, zonisamide and levetiracetam (Keppra) are frequently utilized antiepileptic medications. Any of these drugs can be administered individually or in combination. Ultimately, the objective of managing seizures is to achieve 'control' over them. This entails decreasing both the frequency and severity of seizures to a level considered 'acceptable' (or by 50%, while minimizing drug-related side effects). It is uncommon for us to completely eliminate seizures in a patient. Antiepileptic drug therapy is usually a lifelong commitment, with few exceptions.