

## **Seizures in Dogs**

Seizures are one of the most frequently seen neurological problems in dogs. A seizure is also known as a convulsion or fit. A seizure represents a period of abnormal brain wave activity that leads to a variety of clinical signs.

### **Prevalence**

Seizures represent a common neurologic disturbance in the dog. Veterinarians in private practice see seizures on a fairly regular basis.

### **Clinical Signs**

A number of signs may be observed when a dog is having a seizure. Signs usually start suddenly and end abruptly. They may involve the whole body or just parts of the body, such as one limb or particular muscles of the face. Some of the more common signs include:

1. Loss of consciousness or a change in level of consciousness
2. Contractions of all the muscles in the body, paddling of the legs, chewing
3. Changes in mental awareness from non-responsiveness to hallucinations
4. Behavioral changes, including non-recognition of owner, viciousness, pacing, and running in circles

### **Components of a Seizure**

A seizure occurs in three phases:

- 1) The pre-ictal phase, or aura, is a period of altered behavior in which the dog may hide, appear nervous, or seek extra attention from people it knows. It may be restless, nervous, shaking, or salivating. This may last a few seconds to a few hours.
- 2) The ictal phase describes the seizure itself and lasts from a few seconds to about five minutes. During this period, all of the muscles of the body contract strongly. The dog usually falls on its side and seems paralyzed while shaking. The head will be drawn backward. Urination, defecation, and salivation often occur. If it is not over within five minutes, the dog is said to be in status epilepticus, or a prolonged seizure.
- 3) During the post-ictal phase, there is confusion, disorientation, salivation, pacing, restlessness, and/or temporary blindness. There is no direct correlation between the severity of the seizure and the duration of the post-ictal phase.

Dogs that do not receive medical attention with status epilepticus are at risk for serious complications because of the physiological changes that occur. Most significant is the rise in body temperature that occurs from continuous strong muscle activity. This can lead to hyperthermia and death.

### **Causes/Transmission**

There are many, many causes of seizures. For this reason, when we first begin an evaluation of the dog with seizures, we think less in terms of the specific disease and focus more on categories of diseases. Epilepsy is the most common and of least consequence to the dog. The other extreme includes severe diseases such as brain tumors.

### **Evaluation of the Dog with Seizures**

When a seizure occurs, it is important that you give us a thorough account of recent events, especially recent exposure to any toxins, poisons, medications, hallucinogenic substances or history of head trauma. A physical examination and a basic battery of blood tests are also commonly performed. These tests rule out disorders of the liver, kidneys, heart, electrolytes, and blood sugar level.

If these tests are normal and there is no exposure to poison or any history of trauma, further diagnostics may be performed depending on the severity and frequency of the seizures. Occasional seizures are of less concern than if seizures are increasing in severity and frequency. In this instance, referral to a specialist for a spinal fluid tap and

fluid analysis may be performed. Depending on availability, specialized imaging of the head with a CAT scan or MRI might be performed.

## **Treatment**

Your dog may be discharged with no medications or with a 1-2 week course of anticonvulsant therapy. If there are no more seizures during that time, the anticonvulsants may be discontinued. The next treatment is based on when, or if, another seizure occurs. That may be days, months, or years. At some point, many dogs have seizures frequently enough to justify continuous anticonvulsant therapy. Since that means medication must be given every 12 to 24 hours for the rest of the dog's life, we do not recommend that until seizures occur about every 30 days or unless they last more than five minutes.

It is important to avoid sudden discontinuation of any anticonvulsant medication. Even normal dogs may be induced to seizure if placed on anticonvulsant medication and then abruptly withdrawn from it. We can outline a schedule for discontinuing the medication.

There are two commonly given drugs for treatment.

*Phenobarbital* – a barbiturate. Generally given twice daily by mouth, this drug takes 8-12 weeks for full efficacy. The animal is started on the medication and a blood level is checked 3 months later, then once yearly (or after a dosage change). As Phenobarbital is broken-down by the liver, liver values are checked prior to starting treatment and yearly. Most dogs tolerate the drug very well, although a 2-8 week period of initial adjustment can include an increased (or decreased) appetite, and the animal appearing dull or “drunk.” As the dog gets used to the drug, those signs often disappear.

*Potassium Bromide* (KBr). Given either once or twice daily by mouth. The drug takes 8-12 weeks for full efficacy. The animal is started on the medication and a blood level is checked 3 months later, then once yearly (or after a dosage change). Most dogs tolerate the drug very well, although a 2-8 week period of initial adjustment can include an increased (or decreased) appetite, and the animal appearing dull or “drunk.” As the dog gets used to the drug, those signs often disappear.

Sometimes, a combination of the drugs is needed to control seizure signs.

## **Prognosis**

The prognosis is dependent upon the cause. In some cases, the cause cannot be identified so the prognosis is uncertain. In this situation, the frequency and severity of the seizures are monitored to assess progression of the underlying disease process.

## **Transmission to Humans**

There are some infectious causes of seizures in dogs that pose a health risk to humans; most notable is rabies. Fortunately, this is very uncommon.

Many owners are bitten by the seizing animal because of a well-intentioned effort to help. Despite the dramatic signs of a seizure, your dog feels no pain, only bewilderment. Dogs do not swallow their tongues. If you put your fingers into its mouth, you will not help the dog and will run a high risk of being severely bitten. The important thing is to keep the dog from falling and hurting itself. As long as it is on the floor or ground, there is little chance of harm occurring.