

Seizures and Your Pet

A seizure is an episodic sudden onset of abnormal electrical activity in the brain which results in an observable disorder which is manifested through a variety of signs and symptoms depending on how much and which part(s) of the brain are affected. Epilepsy is defined as a seizure disorder that tends to recur.

There are two basic types of seizures in domestic animals. The **generalized motor or grand mal seizure** is the most common type. It is characterized by symmetric involvement of the entire body and brain with body tremors, loss of consciousness, limb and jaw contraction or contraction/relaxation, salivation, urination, and defecation. The second type of seizure is the **focal or partial motor seizure**. In this type of seizure there is asymmetric involvement of one area of the body and brain, usually with no loss of consciousness. The partial motor seizures may be **simple or complex**. **Simple focal or partial motor seizures** involve only isolated muscle groups, rarely cause loss of consciousness and frequently indicate a focal brain lesion. **Complex focal or partial motor seizures** also called **psychomotor seizures** involve the behavioral centers of the brain and are characterized by fly biting, floor sucking, flank sucking, tail chasing, and/or episodic gastrointestinal signs during the seizure episode. A third type of seizure is the **petit mal seizure** characterized by specific brain wave patterns and has not been documented in animals.

A seizure episode may be preceded by a period of unusual behavior called the **preictal** phase. A seizure is usually followed by a **postictal** phase of a variable length of time where the animal may be disoriented and possibly unstable or temporarily blind. The period between seizures is called the **interictal** period.

Some animals will have one seizure and never seizure again. At the other end of the spectrum are pets that have continuous seizures that are uncontrollable. The vast majority of dogs and cats with seizures fall somewhere in the middle.

CAUSES

Every animal has the potential to have a seizure. The different causes of seizures have been determined to be: (1.) an increase in available excitatory chemicals in the brain, (2.) a decrease in inhibitory chemicals in the brain, (3.) a change in the proportion of excitatory or inhibitory chemical receptor sites on brain cells, and (4.) changes in brain cellular metabolism. Seizures can be caused by events outside the skull (extracranial) or by problems inside the skull (intracranial). **Extracranial** causes include kidney disease, liver disease, low blood sugar, electrolyte disturbances, or cardiovascular or pulmonary disease. There are a number of potential toxins that can also cause an animal to have a seizure. **Intracranial** causes include epilepsy, congenital abnormalities, cancer, infections, immune-mediated diseases, trauma, or a vascular accident.

DIAGNOSIS

The first step in diagnosing the cause of seizures is a complete history and physical examination. If no obvious problems exist, bloodwork and urinalysis would be the next stage. Other potential diagnostic options include a CAT scan or MRI, spinal tap to collect cerebrospinal fluid, myelogram, immunology panel, and toxicology screening.

TREATMENT

The decision to treat the seizures will depend on the cause, the frequency, and the severity of the seizures. If there is an extracranial cause of the seizures, treatment of this underlying disease is started, and the seizures will usually resolve. If the cause is determined to be epilepsy, or some of the intracranial causes, the seizures can be treated with medication.

Treatment is separated into two phases. First is emergency medications. If an animal is continuously seizing or if it has multiple seizures in a short period of time, the animal should be monitored in a hospital and given injectible medications as needed. Maintenance medications constitute the second type of drugs. **Phenobarbital** and **potassium bromide** are the most common medications used. The decision on which will depend on the animal, and the doctor's preference. Each of these medications has potential risks and benefits. Side effects that can be seen with Phenobarbital include drinking and urinating excessively, sedation, excitability, or liver damage. Potassium bromide is a bitter tasting liquid that some animals find very offensive. Possible side effects include lethargy, excessive drinking and urination, pancreatitis, anxiousness, and incoordination. Occasionally more than one drug will be needed to control seizures.

Periodically we will need to monitor the blood levels of the medications and other parameters such as liver values. This will involve blood samples and the frequency will depend on the response to treatment.

The goal of treatment of seizure disorders is to significantly reduce the frequency and severity of the seizures. Complete elimination of all seizures is generally unrealistic.

PROGNOSIS

The long-term prognosis for animals with a seizure disorder depends on the underlying cause, their response to treatment, and how they handle the medications. The best-case scenario is the animal that responds well and shows no adverse effects from the medication. These animals have a normal or near normal life span. The worst case is an animal that is untreatable for a variety of reasons.

COSTS

Diagnosis: History, physical examination and bloodwork = \$150 - \$500
Additional (MRI/CAT scan, cerebrospinal fluid collection and analysis, myelogram) = \$500 - \$2000+ (?), done at the University of Minnesota

Treatment: Phenobarbital: \$0.06 - \$0.12 per pill plus a vial charge
Potassium Bromide: about \$20.00 for a 2-3 month supply.

If you ever have any questions regarding any of this information, please do not hesitate to contact us. Visit us online at www.WhiteBearAnimalHospital.com.

WHITE BEAR ANIMAL HOSPITAL

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