

Human Error Usually To Blame In Uncontrollable Seizures Stephen Sheldon, D.V.M.

A seizure, fit, or convulsion is defined as an uncontrolled, transient electric discharge from the neurons in the brain. Most seizures are due to epilepsy, which means there is no underlying disease in the brain such as encephalitis, metabolic disorders, toxicities or brain tumors. You may have heard from your veterinarian or doctor that epilepsy is a disease of 'rule outs'; which in plain English (which is how I speak to my clients!) means: "if we can't find any reason for the seizures we call it epilepsy."

Epilepsy is controlled and not cured. The medications, called anticonvulsants, most commonly used in animals are phenobarbital and primidone; diazepam, a commonly used drug in humans, is less effective in animals and is also expensive. As stated in the title, the most common reason the anticonvulsants fail is human error: "The most common reason....is improper administration of the medication" writes Cheryl Chrisman, DVM in

Small Animal Neurology. Often times, however, owners and veterinarians are to blame for this problem. Dr. Dorothea Schwartz-Porsche writes in Current Veterinary Therapy XI that some of the factors responsible for inadequate control of seizures are: "improper choice of drugs, insufficient drug dosage, too rapid change of medication/dosage, and noncompliance." Most of the veterinary neurologists would agree.

So what do you do if your dog or cat is having seizures? Your veterinarian will want to try to rule out other diseases/causes for the seizures. Part of his/her evaluation will include a complete blood count, serum chemistries, urinalysis, and skull xrays; additionally they may recommend an electroencephalogram (EEG) and cerebrospinal fluid analysis (CSF tap). You may be offered referral to a neurologist for the EEG and CSF tap.

If all the tests are normal and epilepsy is diagnosed you and your veterinarian have some decisions to make. As a rule of thumb anticonvulsant medication is not started unless the seizures are very severe, occur in clusters, or occur more often than once a month. Some owners (ie. my cousin Fay!) get very upset about seizures and this is also considered a valid reason to start therapy. A good relationship with your veterinarian is crucial to successfully manage the seizures as several attempts with various drugs and doses may be required until a proper program is found. I advise most owners to keep a diary or log; information to be kept should be time and dose of drugs administered, mood of patient/side effects, and any seizure activity.

Phenobarbital is usually the first drug selected for dogs and cats; it is relatively inexpensive and rapidly effective (usually within 2 to 3 days). Some side effects include sedation, hyperactivity, increased thirst/urination, and drug interactions. Once it is started animals often develop a dependence for the drug. Two to three weeks after it is started your veterinarian will check blood levels of the phenobarbital to determine if you are achieving the therapeutic dose; this, along with serum chemistries to check liver function, should be performed every 6 months. Primidone is the next most common drug; it is

metabolized by the body to phenobarbital and phenylethyl malonic acid (PEMA). Primidone is toxic to cats; it is also more expensive than phenobarbital and has more side effects. Valium or Diazepam is used as a single agent in cats or combined with another agent in dogs. It is not effective as a single agent in dogs; it is, however, used intravenously in dogs and cats to arrest status epilepticus (ie. a long protracted seizure).

If one of these drugs does not control the seizure another "first choice" drug should be chosen rather than combining 2 drugs. One drug should slowly be discontinued while the other one is slowly added; sounds fun doesn't it? Actually this method is much more effective than combining drugs and it helps to minimize the side effects of combination therapy. If this doesn't work we go to combination therapy. If combination therapy is not successful there may be an underlying cause that was not present on initial examination such as a progressive encephalitis or a brain tumor; reevaluation may be necessary. As a last result your veterinarian may want to try some human drugs such as Potassium Bromide, Klonopin, Valproic Acid, or Tranxene. Unfortunately, many of the doses for animals for these drugs is guesswork so there is some risk.

As you can see, control of seizures can be difficult. It can also be quite easy and uneventful. The important factor is the human factor: you and your veterinarian. Since these are powerful drugs that often interact with other drugs and medical conditions, keep open a good line of communication with your veterinarian. Keep in mind that we are not going to cure the seizures but rather control them; an occasional seizure is bound to happen so be prepared!