ABOUT THE DISEASE

Seizures are caused by disorganized electrical brain activity that cannot be controlled consciously. There are numerous potential causes of seizures in canine and feline patients, however they are often more severe in feline patients.

There are two main types of seizures, (with terminology often debated), which include:

- Generalized or Gran Mal – Regular, easy to recognize, three distinct phases, loss of consciousness
  - Pre-ictal Phase (Lasts minutes to hours) – Changes in behavior, pacing and anxiety.
  - Ictal Phase (Lasts seconds to minutes) – Active seizure phase, marked by a loss of consciousness
    - Falling to the side, paddling, rigidity; or extension of head/neck upwards
    - May include urination/defecation.
  - Post-ictal Phase (Lasts minutes to hours) – Recovery phase
    - Disorientation, temporary blindness, panting, incoordination, vocalizing, staring.
- Complex Partial Motor or Petit Mal – Irregular, difficult to recognize, no phases, no loss of consciousness
  - This type implies a more severe intracranial (brain) disease.
  - May include behavior changes (fear, aggression), excessive air licking, air/fly biting, twitches/tremors of facial muscles or one side of the body, and sometimes incoordination.

Broadly grouped, the causes of seizures are either:
- Intracranial diseases – those that are confined to the brain or within the skull.
  - “Idiopathic epilepsy” applies to gran mal seizures, when the first started between 1-4 years of age.
  - Seizures starting <6 months of age or >7 years of age often suggest an intracranial lesion of severity.
- Extracranial diseases – those that are caused by problems affecting the whole body.

OBTAINING A DIAGNOSIS

Intracranial diseases can typically only be diagnosed with higher order imaging (MRI; CT) or with the aid of cerebrospinal fluid (CSF) testing. However, inconclusive results are often expected.

Routine laboratory testing, specialty hormone testing, radiographs (x-rays), urine testing, ultrasound, and other blood testing is often only beneficial in determining extracranial causes for seizures and seizure-like activity.

TREATMENT

Due to the expense and availability of testing, the underlying causes and subsequent direct treatment is often not found. The goal of anticonvulsant (anti-seizure) therapy is to reduce the frequency and severity of seizures, as it is often impossible to completely eliminate their occurrence. Treatment is usually life-long.

Anticonvulsants include:

- Levetiracetam – Effective immediately; must be given 3 times per day.
  - Poor treatment alone, so best used in combination with other medication.
- Zonisamide – Effective in about 3-6 days; must be given 2 times per day.
  - Newest management strategy with limited data on efficacy; comparably fewer effects on liver.
- Phenobarbital – Effective in about 3-6 weeks; must be given 2 times per day.
  - Older management strategy with more undesirable side effects; comparably more effects on liver.
- Potassium Bromide – Effective in about 3-6 months; must be given 2 times per day.
  - Oldest management strategy that is difficult to obtain with undesirable side effects and rarely used.

TIPS FOR SUCCESS

- Patients should be started on anticonvulsants or their management altered if they satisfy one of the following:
  - Gran mal ictal phase lasting longer than 5 minutes.
  - More than 3 seizures in a single 24-hour period.
  - More than 1 seizure per 3 weeks.
  - Any time cluster seizures are noted (no state of normal between back-to-back seizures).
  - Any time petit mal activity is witnessed (although very difficult to control).
  - Any patient who starts having seizures before 6 months of age or after 7 years of age.

Adapted from Clinical Veterinary Advisor