

Funded Study: Investigation of canine epilepsy

Study Title: Magnetic Resonance Spectroscopic Imaging (MRSI) in the evaluation of dogs with idiopathic epilepsy

Purpose of the Study:

The purpose of this study is to utilize a very novel MRI technique known as SPectroscopic Imaging by exploiting spatiospectral CorElation (SPICE) to noninvasively measure brain metabolites in dogs with idiopathic epilepsy. SPICE is a form of magnetic resonance spectroscopy (MRS) that allows whole brain measurement of brain metabolites. MRS has been used in people to allow the detection of the origin of the seizure activity within the brain as well as assisting with guiding therapeutic interventions, such as surgical intervention and potential responses to antiepileptic drugs (AEDs)

Inclusion Criteria:

History of 2 or more generalized tonic clonic seizures, occurring at least 24 hours apart. Dogs presented for cluster seizure activity or status epilepticus are INELIGIBLE.

- Age of seizure onset between 6 month and 6 years of age
- Unremarkable physical and neurologic examinations
- Not on ANY medications

Eligibility diagnostics:

In order to be enrolled in the study, all dogs will have to have normal lab work, including a CBC, serum chemistry, urinalysis, and pre- and post-prandial serum bile acids. Dogs with normal examinations and lab work will then undergo routine MRI of the brain and cerebrospinal fluid (CSF) collection and analysis. If the brain MRI and CSF analysis are normal, patients are fully enrolled.

Protocol:

Following routine brain MRI to exclude any potential structural abnormalities, SPICE image acquisition will be performed under the same general anesthesia.

Compensation:

For patients meeting all inclusion criteria discussed above, the cost of the entire workup (bloodwork, MRI, general anesthesia, CSF collection and analysis) totaling approximately \$3000-3500 will be covered by the study. If a dog is excluded at any point in the study, the client **will be responsible** for 50% of the total bill. The study will cover the remaining 50%.

Contact information:

Please feel free to contact the Neurology & Neurosurgery Service at VTHNeurology@vetmed.illinois.edu to refer a patient or for any additional information. Referring veterinarian and client inquiries are welcome.