RESEARCH/PROJECT NAME: Canine Epilepsy: An Underutilized Naturally Occurring Model

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CURRENT STATUS/TIMING: We have performed studies in dogs with naturally occurring epilepsy involving genetics, chronic therapy, dietary therapy, seizure detection and prediction via implanted EEG, and the emergency treatment of epilepsy.

OVERALL GOAL: The results of these studies directly benefit the treatment of dogs with epilepsy, and serve as a very promising model of epilepsy to translate to improved treatments in people in ways that rodent models do not always facilitate

PROJECT SUMMARY: We will present the results of two clinical trials with intravenous (IV) levetiracetam and fosphenytoin for the emergency treatment of status epilepticus in dogs, and our future plans in this area which include IV topiramate. Epilepsy is the most common medical neurologic disease of dogs. Status epilepticus is a serious, life-threatening neurological emergency consisting of prolonged and/or frequent seizures and it is associated with one of the highest mortalities of any neurological condition in both people and dogs. There are a limited number of marketed IV drugs available for status epilepticus (SE). All were first developed for chronic therapy of epilepsy, not specifically for SE. As proof of canine epilepsy being very similar to human epilepsy, we found that levetiracetam and fosphenytoin are tolerated and effective in dogs in similar ways as they are for people. Further, naturally occurring canine epilepsy can be utilized as a translational platform for future studies of novel drugs for SE not developed for chronic epilepsy. The results of these studies also benefit the treatment of dogs by veterinarians.